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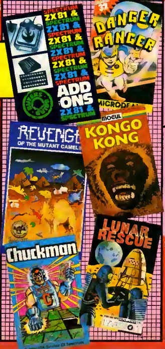
EXTRA Spectrum and ZX81 users: Essential 48-page guide to add-ons

Two pages of Commodore 64 software reviews, PLUS: Spectrum, BBC, Dragon, Electron, Texas

Great games to type in for: BBC/Electron, Spectrum, Texas, Dragon

Programming advice for: Atari, Sord M5, Commodore 64


SPECTRUM ZX81 & SPECTRUM ZX81 & SPECTRUM ZX81 & SPECTRUM
ADD ONS
ZX81 & SPECTRUM
page 37
DANGER RANGER
MICRODEAL
MOGUL
KONGO KONG
REVENGE OF THE MUTANT CAMELS
LUNAR RESCUE
Chuckman

First computer software from Activision

Games cartridge manufacturers Activision have just announced software cartridges for the Atari 400 and 800 home computers

First titles are River Raid and Kaboom and their introduction marks Activision's entry into the computer software market Up until now they have been producing plug in games programs for dedicated games playing consoles such as the Atari VCS and Matell Intellivision.

Both these titles retail at £29 95 and can be obtained from all good computer stores

Continued on page 5

Joystick update and Spectrum amp from AGF

AGF have announced that it is reducing the price of its Programmable Joystick Interface to £26 95 Cheaper components and improved production techniques account for the reduction in price together with the ommission of the second player socket An 'auto-fire' feature has been added to compensate for this The original Interface Module II

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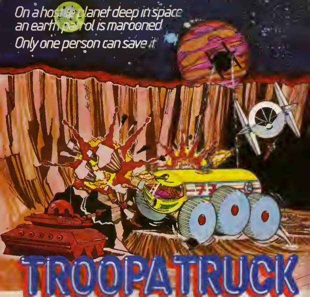
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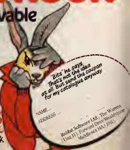

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Lynx disc drives

Owners of the Lynx can now add on up to four 5¼ inch disc drives, each with a capacity of 200K (formatted). Each comes in its own metal case with illuminated on/off switch and disk access light. The operating system, Lynx DOS is fully functional and available now. It adds 19 commands to the existing BASIC and allows all disk functions to be carried out. Connection is easy and made via the plug in disk interface with a simple keyed cable connector.

Camputers, 33A Bridge Street, Cambridge CB2 1UW

■ ● ■

War Games from CCS

Latest in the range of war games from CCS is War 70, a Napoleonic war game in the tradition of the great war games that can last for days, and Pacific War, a simulation set in the Second World War on the Battle of Guadacanal. War games fans will remember that CCS won the 1983 Cambridge Award for their Battle 17 program. They are also hoping for great things with these two new cassettes.

Cases Computer Simulations Ltd, 14 Langton Way, Blackheath, London SE3 7TL

■ ● ■

Joystick interface with sound

Rainbow Electronics have just launched a new programmable joystick interface which is dedicated to the Sinclair Spectrum yet accommodates any software, while also offering sound amplification to boost the weak sound output from the Spectrum.

It can be used to convert those games that depend on the keyboard for operation and is universally applicable to any of the 40 keys. Price is £24 plus £1 p&p.

Rainbow Electronics, Glebe House, South Leigh, Witney, Oxfordshire OX8 6XJ

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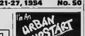
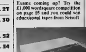


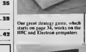
Commodore 64 users: there's two pages of software reviews and an article on programming in this issue

SCISOFT

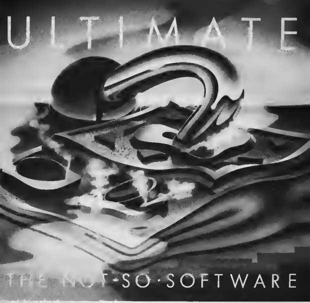
Exams coming up? Try the £1,000 wordsquare competition on page 15 and you could win educational tapes from Scisoft



Our great strategy game, which starts on page 34, works on the BBC and Electron computers



Design your own characters on the Sord M5 — just type in the routine on page 12



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From front page

River Raid, designed by Carol Shaw, is an adventure game in which you are a fighter pilot faced with the task of destroying bridges along a river while the enemy does its best to shoot you down. The further you go, the more difficult it gets. Originally developed for the Atari VCS, the game is now enhanced with striking new graphics and outstanding sound effects.

Kaboom is billed as a whacky fast action reflex game in which you can either be a Mad Bomber or a fast catching Bucketeer, charged with the job of catching his bombs. Again full use is made of the Atari computer's improved graphics.

Activision Software Ltd, Goldings Hill, Loughton, Essex IG10 2RR

From front page

has been similarly modified and will now retail for £13.95 plus £1 p&p.

New from AGF is an amplifier and lead switching unit for the Sinclair Spectrum. Called Amplisound, it connects between the cassette recorder and computer taking its power from the computer itself. A three position switch allows you to LOAD or SAVE without removing any leads while the third position is for amplifying the BLEEP command. Retail price is £24.95 with £1 p&p.

Extender boards are also available price £5.95. They provide clearance between the back of the computer when cased in a keyboard and peripherals. These are available for both Spectrum and ZX81 computers.

AGF Hardware, 26 Van Gogh Place, Bognor Regis, West Sussex PO22 9BY

Drawing the light fantastic?

High-Res Draw program being used with the light pen

Lightpen technology comes to the Commodore 64 with the launch of the lightpen and compatible programmes from Datapen. Already experience has been gained on lightpens for the BBC B, Dragon 32 and VIC-20 computers, now this is applied to the Commodore 64 version.

There are three programmes supplied with each pen both on tape and as a listing which enables the user to incorporate the facilities offered easily into his own programmes. The first program is simply an introduction, highlighting all the features of the device.

The second, called colour draw, allows the user to produce a drawing by transferring the colour graphics characters from a menu to the desired position on the screen.

The third program, called Hi-Res Draw enables the user to produce a drawing down to 200 by 320 pixel resolution directly onto the TV screen. A Sprite creator and Editor will be available shortly.

The Datapen Lightpen for the Commodore 64 costs £25 including p&p.

Datapen Microtechnology Ltd, Kingsclere Road, Overton, Hampshire RG25 3JB

Opalsoft Alphabet

Just out from Opalsoft is Alphabet, a game designed by David Millidge. Designed as a spelling aid for young children, Alphabet, costs £6.95 and can be obtained from many good computer stores, or by post direct from the company. It is available for use with the BBC B computer only.

Opalsoft, 112 Arterial Road, Eastwood, Leigh on Sea, Essex SS9 4DG

You could be on our pages

We welcome programs, articles and tips from our readers.

PROGRAMS must always be sent on cassette. Listings are helpful, but not necessary. Check carefully that they are bug-free. Include details of what your program does, how it works, variables you have used and hints on conversion.

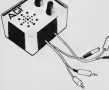
ARTICLES on using home computers should be no longer than 2,000 words. Don't worry about your writing ability — just try to keep to the style in HCW. Articles most likely to be published will help our readers make better use of their micros by giving useful ideas, possibly with programming examples. We will convert any sketched illustrations into finished artwork.

TIPS are short articles, and brief programming routines which we can put together with others. Your hints can aid other computer users.

Competitive rates are paid.

Keep a copy of your submissions and include an SAE if you want them returned. Label everything clearly and give a daytime and home phone number if you can.

Paul Liptrot, Home Computing Weekly,
No. 1 Golden Square, London W1R 3AB



The AGF Amplisound for the Sinclair Spectrum

Low cost printer and typewriter from Brother

Two new products just launched are the Brother EP44 Electronic typewriter and the HP-5 printer

The EP44 runs off four 1 5 volt batteries, weighs less than 5lbs and offers all the facilities of a full typewriter as well as 15 character LCD display and full RS232C serial interface so it can be hooked up into most computers

The 24 by 18 dot matrix printer gives letter quality print with full ascenders and descenders and can print either onto thermal paper or with a heat transfer cassette ribbon onto smooth finish plain paper As well as the standard 44 character keyboard, a second shift key allows access to an additional set of foreign language characters and accents

Simple word processing is possible with a standard letter being entered into the 4K memory and stop codes halting printing to allow individual items such as names and addresses to be entered

Other functions include a printing calculator — four arithmetic functions are included plus percent and the results can be displayed on the LCD display alone if preferred

As a computer printer the EP44 has the RS232C interface which allows easy connection to any model with a similar output Print speed is 16 characters per second and continuous roll paper can be used

With hardware connection or via an acoustic coupler, the EP44 can be used as a full function computer terminal Baud rate is variable from 75 to 1200 and bit length can be either 7 or 8 And the price? £220

At £179 95, the HP-5 printer brings good quality hard copy within the reach of many computer users Column width is a full 80 characters with graphics capacity and the 9 by 9 dot matrix printer will use either thermal paper or plain paper with a heat transfer ribbon Print speed is 30 characters per second The full USA SCII character set is available plus 63 block graphics and 17 international characters and symbols, and the HR5 can be supplied with either RS232C serial or Centronics parallel interface

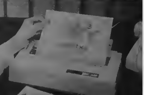
Brother Office Equipment Division, Shepley St, Guide Bridge, Audenshaw, Manchester M34 5JD

Integer BASIC compilers from Oxford

Oxford Computer Systems has developed a set of integer basic compilers that allow you to convert BASIC text files into machine code This allows speed improvements of between 100 and 1,000 times those normally achieved and has been developed for the Commodore 64, 700/B-128 and the 3000/4000/8000 business computer range

The package consists of two compilers — a resident compiler for experimentation and a disk to disk compiler Unfortunately new programmes have to be drafted on the Commodore 8000 business machine before being cross compiled for the CBM 64 or 700/B-128, although it does mean that business programmes developed for the 8000 can now be used on the other machines

Oxford Computer Systems, Hensington Road, Woodstock, Oxford OX7 1JR



The Brother HP-5 printer showing its graphics paces

Crazy about their status symbols...

About two years ago I got hooked on computers through a computer club at my school I rushed into buying a TI-99/4A, which wasn't for me. I'm not saying it's rubbish — some of the cartridge software can't be matched and the speech synthesiser is brilliant — but I felt its BASIC was too limited and slow

When I got my TI there were only four, maybe five, people in my form with computers Since Christmas I estimate that more than half now have them But instead of learning on them, all they do is play games such as Jet Pack and Horace Goes Ski-ing

I think it's a waste of time for parents to fork out over £100 for a computer to play games on when you can buy an Atari games player for less than £80

To most children the computer is a status symbol All you hear is " my computer has more memory than yours", " my computer has better graphics than yours" and so on One boy I know makes fun of the memory of another boy's ZX81 He has a VIC-20 But if you compare it with, say, the Commodore 64, who has the skimpy memory then?

Everybody is going computer crazy

I've recently been bought a BBC micro and I've discovered the benefits of its superb BASIC and graphics I must admit that at first I only played games on it But now I've stopped playing games and have nearly finished reading the advanced user guide Other kids are still playing games

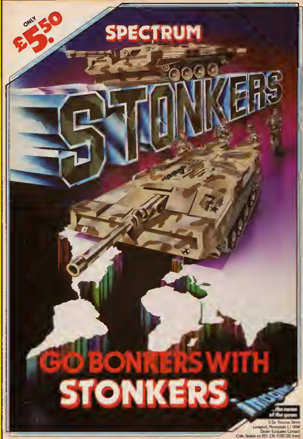
Children, including me, talk non-stop about computers My mum sometimes gets worried about me because since I got my computer I very rarely go outside I just sit in my room tinkering on my computer for at least five hours a day

What really gets me is that some people think that if they get a really advanced computer with, say, 128K of RAM, proper keyboard and full colour high-resolution graphics, they think that the user is also great

That's not true, of course A good programmer on a ZX81 could probably write a better and more interesting game than, for example, a BBC micro user given the same time and effort

Julian Shawcross
Manchester

● This space is for you to sound off about the micro scene, to present bouquets, to hurl brickbats, or just to share your opinions or experiences. Your contribution, which will earn a fee, should be sent to Paul Liptrot, Home Computing Weekly, No. 1 Golden Square, London W1R 3AB.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Originals, but how do they rate?

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Chuckman 48K Spectrum £5

CCI, Units 2, 3 and 4, Shire Hill Industrial Estate, Saffron Walden, Essex CB11 3AQ

No, this is not another version of the ghost gobbling arcader, but an ingenious and very professional original game.

Some nasty soul has hidden time bombs within a massive maze which is 80 times screen size. These bombs have burning fuses which are much too short for comfort. Our hero — yes, you play him again — must rush around trying to defuse the explosives before the big bang. If that isn't enough, between you and the bombs stand the dreaded bonties, fearsome footwear.

Chuckman, who taps his foot impatiently while you think, can dig potholes for the boots to fall into. Energy can be replenished by paying a visit to one of the delightful little eateries scattered about. From time to time the computer decides to create an earthquake, which damages paths, often forcing you to change route.

The maze is very well programmed, and easy to get lost in. But for me the most entertaining section is the superb routine at the end of each game. Full screen size letters drift across with messages such as "you can do better".

instructions	100%
playability	55%
graphics	80%
value for money	80%

★ ★ ★ ★

Danger Ranger Dragon 32 £8

Microdeal, 41 Truro Rd, St Austell, Cornwall PL25 5JE

Here is an unusual game which still retains the flavour of the arcades. It's a fast moving machine code presentation where the object is to collect keys and treasures.

The animation is superb with an initial choice of different coloured screens: black, buff or green background. This can affect the quality of the drawings where — in the buff version, for example — the score was decidedly blurred. I found green best, a compromise between colour choice and clarity.

You guide a man down a series of shelves picking up keys while avoiding bats and laser firing urns. Why urns, I ask? They could equally have been robots! If you succeed then you proceed to the second screen where you negotiate acid coming from top and bottom. There are four demons which can be shot and treasure to collect.

This was a very addictive game initially but with only two screens it proved limiting. As you got better more hazards were added but the incentive to go on was lacking. These days it's not enough to see a mounting score — one has to be visually rewarded.

M.P.

instructions	100%
playability	90%
graphics	90%
value for money	80%

★ ★ ★ ★

Pengwyn 32K BBC £6.95

Postern, P O Box 2, Andoversford, Cheltenham GL54 5SW

I quite enjoy strategy games such as noughts and crosses and Othello. I also really enjoy fast moving arcade games. I was therefore delighted to discover that Pengwyn has magically captured the essential features of both and put them into one.

Pengwyn, the cute little polar inhabitant, has been given the job of lining up three special flashing ice cubes side by side. He can move the cubes by giving them a sharp kick and can clear a path for them by either moving or melting other blocks that can get in the way. Seems simple enough doesn't it? The only trouble is that "smiley" monsters keep emerging from random ice blocks and coming to attack him. Pengwyn's only escape is to crush the monsters by kicking blocks at them (splat!)

A super game with good graphics. My only criticisms are that I found the keyboard controls too widely spaced for easy use and that the random element allows monsters to jump out immediately adjacent to Pengwyn — giving no chance of escape.

P.D

instructions	90%
playability	90%
graphics	95%
value for money	90%

★ ★ ★ ★

PI-Eyed 48K Spectrum £6

Automata, 27 Highland Rd, Portsmouth, Hants PO4 9DA

If lavatorial humour and boozing are for you then you may enjoy this. The PI Man, a huge-hootered purple splodge, is discovered dodging cars along a busy road à la Frogger. Steer him to avoid the cars and into one of the many buildings, and your senses are assaulted by either an excruciating 'joke' or the inside of a pub, where obstacles like people, pool tables, dogs, crisp packets and "certain substances" must be negotiated. To escape and return to the street you must consume all the beer on the bar, avoiding the obstacles.

The scoring system is strange. You start with huge quantities of points which are lost as PI Man is knocked down, obstacles hit or beer drunk. When you run out of points the game stops. However each pint the PI Man sinks is totted up to give the final score. So avoid cars and obstacles and sink as many pints as possible to amass millions.

The graphics are certainly not up to the highest standard achieved on the Spectrum, but are acceptable, though controlling the PI Man without a joystick is very tricky. The humour is not to my liking. I got over the excitement of dog ** 21 years ago, but then I am 13 next birthday(!) All this game needs to be complete is a low score hall of fame!

D M

instructions	90%
playability	70%
graphics	75%
value for money	65%

★ ★ ★

Counter Attack 32K BBC £6.50

OIC, 15 Burghead Cl, College Town, Camberley GU15 4XL

Amid arcade and adventure games, there remains a nebulous area of computer entertainment like noughts and crosses and Othello — the strategy games. Inventing a new game in this category must be the hardest task given to anyone. Counter Attack is a very good try.

The game involves a seven by seven vertical grid, into which the players may place their counters. The object is to produce a row of four counters of your own colour (horizontally, vertically or diagonally). This would seem pretty trivial, and far below the level of "serious games players", were it not for the opportunity for each player of shifting a whole row or column of counters by one square, up, down, left or right. So the playing area takes on an almost spherical dimension with players having to watch possibly important pattern changes.

As a computer game the advantage lies in the fact that tedious counter manipulations are carried out automatically, and it is in this way similar to computerised Orthello. As an adult I found the feel of the game rather slow, but I imagine that it will be popular with younger children. A good but not a great game. Needs O S 1 2

P.D

instructions	80%
playability	80%
graphics	70%
value for money	75%

★ ★ ★ ★

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Write your own BASIC ...almost

It's easy to tinker with the BASIC in the Commodore 64 — and gain more knowledge of the computer at the same time. S. A. Sassoon explains how to use his two short routines

The contents of the BASIC ROM in the Commodore 64 can be copied into RAM and then altered as you wish — in just the same way as the character ROM can be copied and then certain characters redefined

In fact, the copying of BASIC is even easier because there is no need to switch off the interrupt routines This article will use this technique to enable Commodore 64 users to redefine any error message or BASIC keyword — and in doing so gain a greater understanding of how the computer works

Program 1 shows how this can be done The loop in lines 10 to 30 copies the ROM into RAM, one byte at a time Line 40 switches out the BASIC ROM, so that the RAM at the same locations is used instead If you were to enter POKE 1,54 without copying the ROM, the computer would just do a warm start (same as pressing the RUN/STOP and RESTORE keys), leaving the BASIC ROM as it is

Note that we are using RAM which shares the same memory locations as the BASIC ROM and is normally not used This leaves the normal 38K free for BASIC programs

The second part of Program 1 demonstrates how the BASIC vocabulary can be altered The error messages and keywords are stored in ROM as blocks of ASCII code Now that the BASIC language is in RAM, it is possible to POKE new values, representing characters, into the message tables to define alternative error messages and keywords

Line 50 declares the memory location of the first character in SYNTAX Line 60 is the string which is to replace SYNTAX The loop in lines 70 to 90 takes each character in turn and POKEs the ASCII code of each character into the message table

While entering line 60, hold down the SHIFT key while pressing the last character to be printed The program will take about 40 seconds to RUN, almost all the time being taken by the first loop After running the program, enter something which would normally generate a SYNTAX ERROR (not difficult to do!) and see what happens By changing the string in line 60 you can invent your own alternative to the dreaded SYNTAX ERROR

The last character of each message in ROM is indicated by being a shifted character Should you forget to shift this character, the next message in the table will be printed as well Strings of more than six characters may be used (whole sentences may be entered if required), but the next message in the table will be corrupted In the case of SYNTAX error, the RETURN WITHOUT GOSUB error message will be affected

Program 2 will list the computers's vocabulary in the BASIC ROM alongside their memory locations

The messages are stored in three blocks within the ROM The first of these, which is by far the largest, contains all the BASIC keywords and error messages — including a few file errors not mentioned in the manuals The second block contains general messages such as "READY", and the third holds the two INPUT error messages By altering these you can avoid the rather disconcerting "?REDO FROM START" and "?EXTRA IGNOKED" messages from appearing while your programs are running

These messages are terminated by a carriage return (ASCII value 13) rather than a shifted character Also they must not be replaced with a string of greater length

Lines 20 to 30 of program 2 give the memory locations of the three blocks Each location is passed to the subroutine at line 100 This subroutine PEEKs each location in turn and prints the value as a character If the character has shifted (has an ASCII value of more than 128) or is a null character (ASCII of 0) or is a RETURN character (ASCII value 13) then the next location is printed on a new line

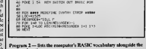
While entering Program 2 don't forget the semi-colons at the end of lines 100, 120, 140 and 150

By noting the memory location of any message and replacing the value of LOC in line 50 of Program 1, any message can be redefined Any location that is listed by the program, but is not followed by characters, must not be altered

Commodore 64 users may wish to extend those ideas further to generate error-trapping routines — a feature which Commodore V2 BASIC lacks

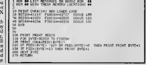
These programs show only the beginnings of what can be done by altering the BASIC language However, it is not only the 64's vocabulary that can be changed Using machine code routines it is possible to adapt the way that BASIC works — to add new commands or extend those already available For those who are really adventurous, the Kernal operating system can be copied and altered in just the same way ■

Program 1 — copies the BASIC ROM into RAM



```
9 REM #### COPY BASIC ROM INTO RAM ####
10 FOR BYTE=40960 TO 49151
20 POKE BYTE,PEEK(BYTE)
30 NEXT BYTE
40 POKE 1,54 :REM SWITCH OUT BASIC ROM
47
48
49 REM #### REDEFINE SYNTAX ERROR #####
50 LOC=41525
60 MESSAGE$="SILL F"
70 FOR I=0 TO LEN(MESSAGE$)-1
80 POKE I+LOC,ASC(MID$(MESSAGE$,I+1,1))
90 NEXT
```

Program 2 — lists the computer's BASIC vocabulary alongside the memory locations



```
1 REM ** LIST MESSAGES IN BASIC ROM  **
2 REM ** WITH THEIR MEMORY LOCATIONS **
3
10 PRINT CHR$(14) :REM LOWER CASE
20 BEGIN=41118 :FINISH=41767 :GOSUB 100
30 BEGIN=41829 :FINISH=41865 :GOSUB 100
40 BEGIN=44294 :FINISH=44316 :GOSUB 100
50 END
98
99
100 PRINT :PRINT BEGIN;
110 FOR BYTE=BEGIN TO FINISH
120 PRINT CHR$(PEEK(BYTE));
140 IF PEEK(BYTE) >128 OR PEEK(BYTE)=0  THEN PRINT :PRINT BYTE+1;
150 IF PEEK(BYTE)=13 THEN PRINT BYTE+1;
160 NEXT BYTE
170 RETURN
```

LLAMASOFT NEWS

NEW for the 8K Expanded VIC:

HELL GATE

A very fast-paced Arcade game featuring simultaneous control of 4 high-speed laser cannon. Unique game action is easy to learn yet difficult to master. Features include 20 levels to challenge you; automatic Smart bombs, seven-place High Score table with score signature memory feature and full Attract mode. A superb Jeff Minter design presented immaculately on a 25 x 30 screen.

£6.00

COMMODORE 64: After finishing HELL GATE Jeff took a couple of days to pop the code onto the '64. Whilst this is no Revenge or Hover Bovver, we are offering HELL GATE 64 at the bargain price of £5.00... an interesting diversion to occupy a little time while you wait for Jeff's next '64 epic, which we can now reveal will be called

SHEEP IN SPACE — for which Jeff promises the usual great graphics and sound — and also a totally new control concept... so prepare to feel extremely sheepish in a few month's time.

Until then — to all our followers

A) HAPPY BLASTING/MOWING/SPITTING ETC.

B) DON'T SHOOT THOSE GOATS!!!

JEFF MINTER FROM LLAMASOFT

Jeff Minter

Llamasoft

AWESOME GAMES SOFTWARE

49 MOUNT PLEASANT, TADLEY, BASINGSTOKE, HANTS

Improve your characters the easy way

Type in Shingo Sugiura's character generator program for the Sord M5 and make your own characters and sprites

This program allows you to define characters and sprites very easily on a large grid. It will run with BASIC I or BASIC G on the Sord M5

When this program is run you will see a 8×8 grid on which one of the dots is flashing. This flashing dot is your current position and you can move this anywhere on the grid by pressing the cursor keys

To create a dot at that position press the space key and to erase a dot, press del (found at the top right hand corner of the keyboard).

When you are satisfied with the character press 'e', then you will see the numbers necessary to create that character. At this point you can press 1 to edit the character you have just made, 2 to define another character or press 3 to quit the program altogether

When you are defining a character, you can rotate the character by pressing 'r', upturn the character you're creating by pressing 'u', mirror the character by pressing 'm', or clear the grid by pressing 'c'

How it works

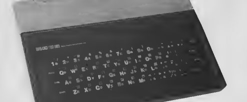
- 10-20 REMs
- 30 define DIM
- 40 select GII graphic mode
- 50 initialise DIM
- 60 70 set up the screen
- 80-90 print the grid
- 100 initialise X and Y co ordinates for the cursor
- 110 scan the keyboard
- 120 indicate current position
- 130 update grid
- 140-230 see what keys pressed and take appropriate action
- 240 if key pressed isn't 'e' go back to beginning
- 250-290 work out the numbers for the character
- 300-320 print the numbers for the character
- 330-340 print the options and wait for a response
- 340-360 clear the grid
- 370-420 rotate character
- 430-480 mirror the image
- 490 540 upturn the character

Notes on typing in: In lines 40 and 60 obtain the inverse character by pressing SHIFT + CTRIL and the appropriate character. To obtain the down arrow in line 330 press SHIFT + CTRIL + ? simultaneously

```
10rem Character Generator
20rem BY Shingo Sugiura
30 dim A(8,8),T(8,8),B(7)
40 print "▓"
50 for B=1 to 8:for B=1 to 8:let A(A,B)=0:next:next
60 print "▓"    CHARACTER GENERATOR":print cursor(4,3)"12345678"
```

```
cursor(2,4)12345678
70 for A=1 to 8:print cursor(0,A+5)chr$(48+A):for B=1 to 8
80 if A(B,A)=0 then print cursor(B+1,A+5)"·" else print cursor(B+1,A+5)chr$(120)
90 next:next
100 let X=1:let Y=1
110 let A$=inkey$
120 print cursor(X+1,Y+5)"_"
130 if A(X,Y)=0 then print cursor(X+1,Y+5)"·" else print cursor(X+1,Y+5)"■"
140 if A$="→" then let X=X+(X<8)
150 if A$="←" then let X=X-(X>1)
160 if A$="↓" then let Y=Y+(Y<8)
170 if A$="↑" then let Y=Y-(Y>1)
180 if A$=" " then let A(X,Y)=1
190 if A$="" then let A(X,Y)=0
200 if A$="c" then gosub 350
210 if A$="r" then gosub 370
220 if A$="m" then gosub 430
230 if A$="u" then gosub 490
240 if A$<>"e" then goto 110
250 for A=1 to 8:let B(A)=0
260 for B=8 to 1 step-1:if A(B,A)=1 then let B(A)=B(A)+2^(8-B):next
270 let B$=B$+right$(hex$(B(A)),2):next
280 for A=0 to 7:print cursor(19,A+6)B(A)
290 next
300 print cursor(0,16)"Hex= ";chr$(34);
310 for I=0 to 7:print B$(I):next
320 print chr$(34)
330 print "1) Edit  2) Define  3) Quit"
340 let A$=inkey$:if A$="1" then goto 60 else if A$="2" then
```

```
goto 50 else if A$="3" then end else goto 340
350 for A=1 to 8:for B=1 to 8:let A(B,A)=0:print cursor(B+1,A+5)"·":next:next
360 return
370 for A=1 to 8:for B=1 to 8:let T(B,A)=A(B,A):next:next
380 for A=1 to 8:for B=1 to 8:let A(B,A)=T(9-A,B):next:next
390 for A=1 to 8:for B=1 to 8
400 if A(B,A)=1 then print cursor(B+1,A+5)"■" else print cursor(B+1,A+5)"·"
410 next:next
420 return
430 for A=1 to 8:for B=1 to 8:let T(B,A)=A(B,A):next:next
440 for A=1 to 8:for B=1 to 8:let A(B,A)=T(9-B,A):next:next
450 for A=1 to 8:for B=1 to 8
460 if A(B,A)=1 then print cursor(B+1,A+5)"■" else print cursor(B+1,A+5)"·"
470 next:next
480 return
490 for A=1 to 8:for B=1 to 8:let T(B,A)=A(B,A):next:next
500 for A=1 to 8:for B=1 to 8:let A(B,A)=T(B,9-A):next:next
510 for A=1 to 8:for B=1 to 8
520 if A(B,A)=1 then print cursor(B+1,A+5)"■" else print cursor(B+1,A+5)"·"
530 next:next
540 return
```



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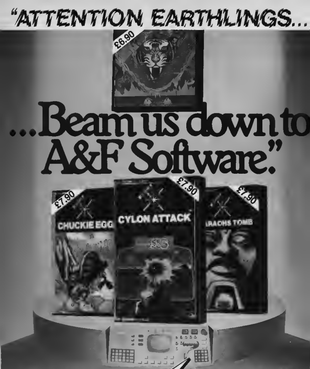
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Exams coming up? Win programs to help from SCISOFT

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Whether you're a pupil, parent or teacher, this week's competition is for you. There's 70 prize packages of educational software to be won from Scisoft.

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The prizes are for three age groups, 5-8, 9-13 and over 13. Please make sure you note your preferred age group on the coupon.

As with all educational software, it is available to check with the exam syllabus that all parts of the program/s are relevant.

Some examination boards may not require knowledge of all the contents of the packages.

The prizes

Each of our 70 winners will receive two titles drawn from Scisoft's range of programs. They are:

Jungle Maths   Astromaths
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Maths part I   Maths part II
Physics   Chemistry
Biology   Computer Studies
Teacher's Mark Book

Wherever possible, the problems in the software contains randomised data so that they can be used time and time again with increasing benefit, says Scisoft.

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The programs are written to be compatible with most 'O' level boards and are also useful for the most able CSE pupil.

Note: not all programs run on all the named computers, so Scisoft's choice of prizes may not match the marked age group, although every effort will be made to match requests.

How to enter

All you have to do is study our wordsquare to find the titles of Scisoft's programs. All of them, and more, are in the list under the section headed The Prizes.

Mark the titles you find by ringing them with a ballpoint pen or marking them with a semi-opaque felt tip pen.

Fill in the coupon clearly — if you are a winner it will be used as a label — and send the wordsquare with coupon attached to us. You must mark on the back of the envelope the number of software titles you found in the wordsquare.

Please ensure that the coupon, wordsquare and envelope are correctly filled in. Entries which are incomplete cannot be considered.

You may enter as many times as you wish but each entry must be on the official coupon and wordsquare — not copies — and be sealed in a separate envelope.

Do not enclose anything else.

Post your entry to Scisoft Competition, Home Computing Weekly, No. 1 Golden Square, London W1R 3AB.

Closing date is first post on Friday March 2.

The winners will be the first 70 correct entries opened at random after that date, regardless of computer or prizes chosen.

The prizes will arrive from Scisoft within 28 days of the publications of the issue containing the names of the winners and the solution.

The rules

The first 70 correct entries opened after the closing date, Friday March 2, 1984, will win the prizes. They will be selected at random regardless of computer owned or age group selected.

Entries which do not follow the guidance in the How to Enter section cannot be considered.

Entries will not be accepted from employees of Argus Specialist Publications, Scisoft and Alabaster Passmore & Sons. This restriction also applies to employees' families and agents of the companies.

The editor's decision is final and no correspondence will be entered into.

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Y	X	T	O	P	O	B	G	F	V	N	C	A	Y	J	O
K	J	R	I	W	I	Z	A	R	D	B	O	X	Z	K	M
L	K	O	O	R	F	P	U	E	O	N	B	M	S	S	P
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P	X	L	E	H	H	G	I	A	O	C	Y	O	P	U	U
Z	L	M	K	N	J	T	S	F	R	R	O	O	N	G	D
E	G	N	F	C	H	E	M	I	S	T	R	Y	H	I	I
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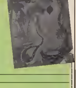
Scisoft Competition



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Five more for your CBM 64

As proof of the computer's popularity, software houses have been beavering away with their Commodore 64s. Here's what our reviewers think of some of the latest

Kongo Kang
£6.95

Mogul, 90 Regent St, London
W1R 5PT

Yet another version of Donkey Kong for the CBM-64, but I found this one nicely fills a gap in the "Kong market". The game has a slightly unusual screen layout and is quite easy to play on level 1 but rather hard on level 9.

Comparing it with other versions, Anirog's is far superior but requires quite a lot of skill and practice and Interceptor's is inferior and harder to control.

The first screen comprises of getting past barrels and working your way to the top. Screen two is a set of conveyor belts on which you must travel. The third screen is a complex set of gaps in the floor through which you must jump and moving girders to hold onto. In the final screen you must collect the supports holding up the platforms. On doing this there's a nice display of collapsing platforms. You now go back to the start but the speed is faster.

Quite a few inaccurate things happen, such as barrels moving up ladders or over mid air. These can be quite annoying as there is neither a pattern nor rules in play that the computer sticks to.

A quite good version, but overpriced compared with Anirog's version. **K.I.**

instructions	50%
playability	85%
graphics	60%
value for money	65%

★ ★ ★

Revenge of the Mutant Camels
£7.50

Llamasoft, 49 Mount Pleasant,
Tadley, Hants

Beware, ZZaxians! Those camels are back on our side now and ready to take everything you care to throw at them!

This game is very well presented, with a video type case containing the cassette and a little instruction leaflet. One of the best things about it is that it loads fast — no more 15 minute waits before you can play. There's an experimental "Turbo" format recording on side one and a normal version on side two in case your equipment won't accept this (mine did).

There are 42 different waves of nasties for your mutant camel to spit at, jump over or duck under, some of them extremely odd. Telephone kiosks, walking sticks, flying saucers — you name it and it's probably in there somewhere. You can work your way through the waves in order, or opt to have them selected randomly, when only the first 32 are available. You have five camels per game, each of which can survive quite a lot of hits before collapsing with legs in the air.

An extremely entertaining game which will really challenge arcade aces as well as giving the rest a lot of fun. **M.N.**

instructions	80%
playability	95%
graphics	95%
value for money	95%

★ ★ ★ ★ ★

Stellor Dodger
£7.95

Terminal, 28 Church La, Prestwich, Manchester M25 5AJ

This game involves piloting a shuttle vehicle between a mothership and supply dumps. The mothership moves slowly across the top of the screen and the supplies, on red and yellow platforms, are at the bottom of the screen. In going between the two you have to pass through an asteroid belt.

The screen displays current score, high-score, trip number and fuel gauge — a vertical bar down the right of the screen. You only get topped up when you complete a round trip.

If you don't want to avoid the asteroids you can blast them, but there are rather a lot. While you're positioning yourself to blast one you're likely to be sideswiped by another.

I was not very impressed by this game. The instructions were rather vague. The card said it was self demonstrating. Having loaded the program I sat for quite a time waiting for it to self demonstrate, but it never did. I eventually decided that you had to select the keyboard option and then do nothing for a demonstration.

The graphics were relatively crude. When the shuttle got hit or crashed several parts of the display started to flash in multicolour unison. Not a game I feel like coming back to. **L.C.**

instructions	30%
playability	50%
graphics	50%
value for money	40%

★ ★

Hunter
£7.95

Terminal, 28 Church La, Prestwich, Manchester M25 5AJ

This game has its origins in Pacman but it's sufficiently different to be original. It is also reminiscent of the motor cycle race in Tron.

You are chased by six enemy planes around a maze of 'corridors'. You can fire at, and destroy, an enemy plane when it's in the same corridor. However your shots go straight and the enemy plane doesn't hang around.

While you are moving around trying to destroy the planes they are inclined to ambush you. But at least you have five lives.

It's easy to clear the first screen of its six enemy planes. On each succeeding screen, however, the enemy move faster and by about the sixth you're a nervous wreck.

At the start you type your name in and the screen displays the top three scores.

I enjoyed this game and kept coming back for more. It is addictive because it becomes more difficult slowly, so you think next time you'll be able to go a little bit further. **L.C.**

instructions	60%
playability	70%
graphics	60%
value for money	75%

★ ★ ★ ★

Arcadia 64
£5.50

Imagine, 5 Sir Thomas St, Liverpool L1 6BW

Having seen this game advertised for just about every machine except the CBM-64, I often wondered if the opportunity to master it would come my way.

Arcadia consists of you, a galaxian style laser base and various ships coming at you in fleets. The object is, as usual, to blast anything that moves. If you do not manage to get everything when directly above you then you get killed by missiles from them. This makes the game tedious and impossible at times.

The game uses 16 sprites (or at least it seems to). You may remember CBM claims you may have up to 256. The fault is that only eight may be displayed each time the screen is scanned. The result is a constantly annoying flicker in the graphics. This could be the cat amongst the pigeons because the rest of the program is quite well written.

The game loaded perfectly each time, though there is one slight snag — it takes 20 minutes. The instructions are adequate and cover all aspects of play.

This is not exactly my type of game. Although I like space games on this theme, this one has less lasting appeal. However, after saying that, it is worth considering because of its price. **K.I.**

instructions	50%
playability	70%
graphics	60%
value for money	85%

★ ★ ★ ★

PEDRO

"Vengo"

"Vengo"

"Vengo"

Pedro is one mad mexican gardener, and he's bringing his troubles your way.

Can you stop the animals eating your plants?

Can you block up the maze exits to keep them out of your garden?

Can you scare away the thieving tramp who's after your precious seeds?

Can you stop yourself pulling out your hair with frustration?

Find out soon, with PEDRO.

Imagine

..the name of the game

For the
48K SPECTRUM
COMMODORE 64
DRAGON 32
BBC Model B
ELECTRON

£5.50

Don't be fooled... it's not so easy

Here they come again. Those aliens are determined to conquer us. You can stop them. Quickly type in Tim Freeman's program for the standard TI-99/4A

How it works

100 REM
110-160 Y or N to instructions
170-290 instructions
300-830 define characters for screen, laser beam and set screen
840 set random column for alien descent
850-920 define alien, move alien
930-950 limit quantity of aliens
960-1090 fire laser beam
1100-1120 limit quantity of laser shots
1130-1140 stop alien when laser is fired
1150 decide if laser is on target
1160-1240 laser miss routine
1250-1270 score generator
1260-1430 game over
1440-1680 explosion routine

Laser Defence seems simple to play — there's just one key to press — but it's not as easy as it looks.

Use any key, I recommend the space bar, to fire your laser beam at the aliens as they ascend.

Only one alien will appear at a time and your number of shots is not restricted, although you can be attacked by up to 20 aliens and then you have a maximum of 20 shots.

Variables

E random position of alien between columns 1 and 24
C row number of alien in steps of one from row 1 to 21
I column number of laser gun in steps of −1 from column 29 to 1

The other variables explain themselves

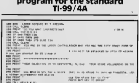
Hints on conversion

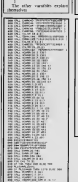
TI BASIC is fairly standard with two main exceptions. Single statement lines are used and subroutines for graphics and sound are available, prefixed with CALL, as detailed below

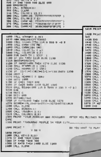
CALL CLEAR clears screen
CALL SCREEN defines screen colour
CALL CHAR defines a character with a 16-digit hex string from an eight by eight grid. Other machines will use a different method
CALL COLOUR (character set, foreground, background) sets colour of character
CALL HCHAR (row, column, character code, number of repeats) places character on screen at co-ordinates specified and optionally repeats character horizontally
CALL VCHAR similar to HCHAR but repeats character vertically
CALL GCHAR (row, column, variable) similar to a screen PEEK on other machines. Gives the ASCII code at the given screen co-ordinates
CALL SOUND (D,F,V) gives sound of duration D, frequency F and volume V. Three sounds can be produced at once

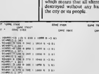
It is wise to aim carefully and hit each alien in turn.

The best score possible is zero, which means that all aliens were destroyed without any harm to the city or its people.









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Once more into the arcades

Arcade-style games star-rated by our reviewers. Read before you buy

McKensie 48K Spectrum £5.95

Software Projects, Bear Brand Complex, Allerton Road, Woolton, Liverpool L25 7SF

An adventure game with the unoriginal scenario of having to escape from an abandoned space station before your oxygen runs out. Instructions consist of two sides to aid the beginner entitled "What is an adventure", "Courtesy P Kemp" — whoever he is. Then some Quicksilva type blurb which says about as much as my first sentence, and finally half a side of loading instructions, very apt because the program didn't load until my fourth try. However they don't actually tell you how to play! They don't say you must type "protein" — yes protein — instead of "pills", they don't say you can type the first three letters of certain objects. I only found out by listing.

Yes folks, it's written in BASIC. Not that I hold this against anybody, but I agree with John Braithwaite (One Man's View, HCW 45) "Machine code, BASIC or Chinese heiroglyphics, the buyer should be able to repeatedly load it, play it and enjoy it." It is too slow to be enjoyable. Faster adventures can be written in BASIC.

This comes from the same stable as Manic Miner, but is not of the same class. It is outstanding only in its mediocrity. As for why it's called McKensie, your guess is as good as mine.

	M T
instructions	45%
playability	45%
graphics	n/a
value for money	50%

★ ★ ★

Chuckle Egg Electron £7.90

A&F, Unit 8, Canal Side Industrial Estate, Woodbine St, Rochdale, Lancs

Just when you thought it was safe to go back on the farm this game makes you think again. The idea is to collect eggs before storks devour the corn or you. The eggs are on different floors. Using ladders you can climb up or down. You can also jump down but, beware, if you fall below the ground floor the undertaker is in business.

The program lets you get used to the game gently. Climbing ladders and dodging nasties is great fun. Later it becomes very skilful with the introduction of lifts as well to gain access to different floors. Everyone knows the dangers of falling down lift shafts, so be very careful.

You use two sets of keys and the space bar. Combinations of these allows you to move up or down, left or right and jump.

An enjoyable game with good graphics. If you are wondering what that duck is doing in the cage, clear eight sheets of the game to find out. The nightmare has begun.

	M B
instructions	70%
playability	90%
graphics	70%
value for money	95%

★ ★ ★ ★ ★

Birds of Prey Electron £6.99

Romik, 272 Argyll Avenue Slough Berks

A fast moving invaders type game where the aliens in space take the form of birds. At the start the birds appear in formation at the top of the screen. Your gun is stationed at the bottom and is moved and fired by either keyboard or joystick. There are four skill levels.

For each bird destroyed points are scored, these being lowest while the birds stay in formation, but as the game progresses they break ranks and attack begins in earnest.

There are three categories of bird: the Swoopers, there circle down the screen dropping bombs as they come, the Death Bombs to be destroyed before they reach the bottom of the screen or a life will be lost, and the Kamakazee Birds — the most elusive yet these will score the most points.

As each screen is cleared another formation appears and for every third screen completed an extra life gained. The game ends when no lives are left and a table of high scores displayed.

Additional features of the program include commands to turn off the sound, and pause to stop play when finger fatigue sets in.

	J W
instructions	100%
playability	85%
graphics	80%
value for money	80%

★ ★ ★ ★ ★

Di-Lithium Lift Spectrum £5.95

Hewson, 60a St Mary's St Wallingford, Oxon OX10 0EL

The most compulsive games are usually the simplest in concept. Be warned: this game is no exception.

Remember the Steddabs? We battled them in Hewson's last effort, 3D Space Wars. Well they're back with a vengeance. Their armour division has to protect the priceless di lithium crystals from light fingered Spectrum owners.

You must rush around the grid and grab as many as you can before enemy droids line you up in their sights. Each cluster of jewels is in a pattern, and each jewel must be grabbed before you can progress to the next and more hostile Steddabs. A clock is ticking away, only replenished by grabbing red crystals.

Simple? It is. But don't let this fool you. This is one of the most difficult and compulsive I have ever played. Having stayed up all night I can report that I have cleared the first screen! Only seven more to go.

The most maddening aspect is that when you lose a life all crystals are replaced. In fact this game requires a different strategy to any other game I have played. Instead of watching your man you must keep an eye on the Androids who patrol the edges of the screen. An excellent game which I will still be playing months from now.

	T B
instructions	60%
playability	100%
graphics	70%
value for money	80%

★ ★ ★ ★

Dragon Hawk Dragon 32 £8

Microdeal, 41 Truro Rd, St Austell, Cornwall PL25 5JE

Dragon Hawk is a "busy" game — there is a lot going on and you have to be on your toes. Your job is to prevent the hawk from carrying Freddy off and to score points. Armed with a rifle and a basket you have to shoot the hawk and then fetch the basket to catch Freddy. Other targets present themselves — flies, larvae and eggs — all of which are a potential nuisance. Although what the flying larvae are doing up there I've no idea!

Loading was no problem and the game — joystick or keyboard control — ran smoothly. What I found annoying was the very messy screen presentation that spoiled some of the very good graphics. When the hawk rose to carry Freddy a thick black and white bar appeared. The larvae created a stepping stone barrier which you had to shoot through and sometimes prevented your reaching the basket. At some stages you have a littered screen which simply clogs up the game.

A good idea with some nice animation. A Top 10 score table is included and an auto mode. A lot of nice features but not enough to save the game.

	M.P
instructions	100%
playability	50%
graphics	40%
value for money	30%

★ ★

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16K ZX81

Here is a selection of titles still available for ZX81 Send a s a e for illustrated catalogue These are the ZX81 equivalents of the Spectrum programs described above Although similar in concept the specifications fall short of the descriptions given for the Spectrum

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Reviewer writes

I read with interest the letter from Neil Stelling, of Stell Software, in HCW 48. I reviewed his Maths Invaders program and I feel he deserves an apology. The points he makes are quite fair and, therefore, I would like to recommend this program to a far greater extent than my review would suggest.

The reason for my change of heart is that since the review was completed I have had the opportunity to test the program in school and with some reluctant learners. Unfortunately the review was written during the Christmas holidays when no children were available for testing.

I hope Mr Stelling will, therefore, accept that while my opinions were sincerely held at the time the review was written, it is since then I have good reason to change them. I wish him every success with this program.

D C, Home Computing Weekly software reviewer

Maths Invaders costs £7.95 and runs on the 32K BBC or Electron computers. From Stell Software, 36 Limefield Ave, Whalley, Lancs BB6 9RS

Spectrum isn't so bod

I am fed up with people complaining about the Spectrum and making jokes about it so I thought I would write in and tell your readers that it isn't so bad after all.

The times I have been in Boots or W H Smiths where computers are on show and I hear "Ugh! Look it's one of those Spectrum things. It's so small. These keys are made of rubber."

Admittedly, the keys are not all that spectacular. But then again the keys on an Oric are bad. Also the sound isn't supposed to be very good. If you pass it through the tape recorder, or the TV (with an add-on) it sounds perfect.

Some people say the graphics are terrible, look at Ultimate's Atic Atac. On that they are excellent.

I noticed that in HCW Nos 46 and 47 you published letters showing you how to get to any level in Manic Miner. If you want to have endless lives when loading, before the program to load the picture starts press C/S and B/S to break into the program. Then at line 25 insert POKE 35136 0. Now run the program and start the tape off again.

Another tip: if you want to scroll the screen up by one line then type LET L=USR(3280). Also, to find how much memory you have left type PRINT 65535 –USR 7962

Mark Crisell, aged 14, Great Totham, nr Maldon, Essex

Any old computers?

I wonder if I could use the letters section of your magazine to make an appeal to your readers. I am involved with an ILEA Saturday school project in Islington. As part of our activities I run a computer group and although we have access to three Spectrums, we desperately need more facilities. There must be a number of people who have discarded to a cupboard their old ZX80 or ZX81 having bought a Spectrum or other micro. Perhaps some of these people would feel able to loan or donate such unused micros as the funding for this project is minimal. If anyone can help in any way perhaps they would contact me.

Stephen Oxford, Senior Teacher, Highbury Fields School, Benwell Road, London N7 7BW

Flight plon

As I am an avid user of the Psion Flight Simulator, I have found a novel idea to make it more interesting. All you do is find a map around five miles to the inch, and draw grids on it the same as on the map in the program, for example 16 miles square. If you live in the S.E. you will find that the main runway in the program could represent the runway at Heathrow, and the club is in virtually the same portion as Ipswich. Thus, if you take off from Heathrow, example (MAIN), you can count the squares in relation to where you are on the program map and you will see where you are. You can also tell how long it takes to fly from one place to another. Of course, this idea will work on any simulation program that has a map, with scale grids.

S. Wareand, Gillingham, Kent

Miner tips 1

In his letter about Manic Miner (HCW 47), S Holland amended G Holding's letter (HCW 45) by supplying the codes for all the caverns. They both appear to have forgotten about the indefinite amount of lives you can have.

Put MERGE "" and ENTER then LOAD first part, stop tape when 0 OK,0:1 appears at the bottom of the screen, put 25 POKE 35136 0 ENTER RUN ENTER. Start tape when loaded press ENTER 6031769 with boot on screen. You now have unlimited lives as well as access to sheets.

P R Capstick, Leeds, West Yorkshire

Miner tips 2

Having read tips on Manic Miner for the Spectrum on your letters page, I have a tip that may be of some use. Stop the tape about 11 seconds after it has begun to load, break the program and type 25 POKE 35136,0 ENTER it, push run and start the tape and let the program load. This enables you to play the game without losing any lives.

Steven Sheppard, Redfield, Bristol

More for the Oric

Magazines I buy nowadays are all featuring articles on Spectrums, BBCs and other micros. Hardly any of them have articles on the Oric 1. I must admit that HCW does feature most things about the Oric, but please could you print more than you do?

Alistair Crichton, Ayrshire, Scotland

We always take note of letters like this because we try to balance the content of the magazine according to the demands of our readers. But please remember that there are more than 20 home computers on the market. As always, contributions — programs and articles — are welcome for all home micros under £400. Oric owners take note! ■

Plotting the dots for extra colours

Follow the advice of Anthony Ball for more colours on any Atari. His three programs show how it works

While reading an American computer magazine, I came across a program to put more than one colour on a mode 8 display, without altered display lists or any interrupts

Eager to see the new colours, I typed in the program

Disappointingly, all I got were ugly green and blue stripes I investigated and found that the program plots the different coloured dots on an American TV, here the correct colours didn't show

Program 1 should put nice shades of orange and blue on a US TV, but horrible shads of green and blue on a British TV.

By plotting every eight dot on our TV system, then every eight dot but with an offset of four across and one dot down, we get a coloured line

If we zig-zag these dots down the screen we get a graphics 8 screen filled with a new colour

By plotting dots in between these we can get a more distinct colour **Program 2** demonstrates this

By starting the loops at various points we get different colours **Program 3** shows this, and also demonstrates a way in which these "new" colours can be used in a "serious" application

If you leave the program for about a minute it will shift the colours — not normally possible with these colours — by moving the screen up and down by one pixel

A lot of American games use these "artifacts" to get more colours without using the resolution of mode 8 Unfortunately, these haven't been converted to the UK's TV system and so we get the ugly colours from program 1

The only solution to this is to write two versions of each program one for America and one for the UK The sooner American games writers realise this the better!

Note. Due to colour balances on some TVs, these "extra" colours may not appear Try turning up the colour/luminance controls on your TV.

Program 1 — horrible shades of green and blue

```
10 GRAPHICS 8:POKE 710,0:POKE 709,14:
COLOR 1
20 FOR X=1 TO 300 STEP 2:PLOT X,50:
DRAWTO X,90
30 NEXT X
```

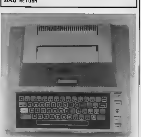
Program 2 — more distinct colour

```
10 GRAPHICS 8:POKE 710,0:POKE 709,14:COLOR 1
20 FOR X=0 TO 300 STEP 8:FOR Y=50 TO 90
STEP 2
30 PLOT X,Y:PLOT X+1,Y+1:PLOT X+3,Y:
PLOT X+4,Y+1:PLOT X+5,Y:PLOT X+6,Y+1
40 NEXT Y:NEXT X
```

Program 3 — how "new" colours can be used

```
0 DIM SALES(8):FOR N=1 TO 8:SALES(N)=INT(
RND(0)*40):NEXT N
10 GRAPHICS 24:COLOR 1:POKE 709,14:
POKE 710,0
20 DIM TEXT$(40):WRITE=1000:SCR=PEEK(88)+
PEEK(89)*256
25 X=14:Y=4:H=2:TEXT$=" Artifacts ":
GOSUB WRITE:REM Artifacts IS INVERSE
26 X=10:Y=30:TEXT$="Plotting the dots":
GOSUB WRITE
27 X=12:Y=60:H=1:TEXT$="By Anthony Ball":
GOSUB WRITE
28 FOR N=1 TO 1000:NEXT N:
?#6;"{ESC-CTRL/CLEAR}";
30 LINE=2000
40 FOR N=20 TO 122 STEP 2:PLOT N,0:
DRAWTO N,11:NEXT N
50 X=5:Y=2:N=1:TEXT$="American":GOSUB WRITE
60 COL=1:BX=20:EX=120:SX=8:BY=13:EY=24:SY=2:
GOSUB LINE
70 Y=15:TEXT$="Colour 1":GOSUB WRITE
80 BY=26:EY=37:GOSUB LINE:Y=28:
TEXT$="Colour 2":GOSUB WRITE
90 BX=19:BY=39:EY=50:GOSUB LINE:Y=41:
TEXT$="Colour 3":GOSUB WRITE
100 BY=52:EY=63:GOSUB LINE:Y=54:
TEXT$="Colour 4":GOSUB WRITE
105 FOR N=66 TO 77:PLOT 18,N:DRAWTO 122,N:
NEXT N:Y=68:TEXT$="Colour 5":GOSUB WRITE:
REM Colour 5 IN INVERSE
106 PLOT 18,79:DRAWTO 18,90:DRAWTO 122,90:
DRAWTO 122,79:DRAWTO 18,79:Y=81:
TEXT$="Colour 6":GOSUB WRITE
107 GOSUB 3000
108 REM LINES 110 TO 130. A '*' IS A SHIFT =
110 H=2:X=20:Y=0:TEXT$="5 *":GOSUB WRITE:
Y=16:TEXT$="4 *":GOSUB WRITE
120 Y=32:TEXT$="3 *":GOSUB WRITE:Y=48:
TEXT$="2 *":GOSUB WRITE
130 Y=64:TEXT$="1 *":GOSUB WRITE:Y=80:
TEXT$="  *":GOSUB WRITE
140 H=1:Y=96:TEXT$="                   ":
GOSUB WRITE:REM 3 SPACES, THEN CTRL-K,
THEN 16 INVERSE CRTL-U's
150 H=2:X=30:Y=110:TEXT$="Weeks":GOSUB WRITE
160 H=1:X=23:Y=100:TEXT$=" 1 2 3 4 5 6 7 8":
GOSUB WRITE
170 Y=88:X=22:FOR N=49 TO 54:TEXT$=CHR$(N):
GOSUB WRITE:Y=Y-16:NEXT N
175 FOR C=1 TO 0 STEP -1:COLOR C
180COL=2:N=1:SX=1:BY=94:SY=-2:
FOR BX=194 TO 306 STEP 16:EX=BX:EY=SALES(N):
GOSUB LINE:N=N+1:NEXT BX
185 NEXT C:FOR C=1 TO 0 STEP -1:COLOR C
190 N=1:BY=93:FOR BX=194 TO 306 STEP 16:
EX=BX:EY=SALES(N):GOSUB LINE:N=N+1:NEXT BX
195 NEXT C:FOR C=1 TO 0 STEP -1:COLOR C
200 N=1:BY=94:FOR BX=195 TO 307 STEP 16:
EX=BX:EY=SALES(N):GOSUB LINE:N=N+1:NEXT BX
205 NEXT C:FOR C=1 TO 0 STEP -1:COLOR C
210 N=1:BY=93:FOR BX=195 TO 307 STEP 16:
EX=BX:EY=SALES(N):GOSUB LINE:N=N+1:NEXT BX
220 NEXT C:COLOR 1
230 DLIST=PEEK(560)+PEEK(561)*256+4
240 SCREEN=PEEK(88)+PEEK(89)*256:SCREEN2=
SCREEN+40:SCR2A=INT(SCREEN2/256):SCR2B=
SCREEN2-(256*SCR2A)
```

```
250 SCR1A=INT(SCREEN/256):SCR1B=SCREEN-
(256*SCR1A)
260 POKE DLIST,SCR2B:POKE DLIST+1,SCR2A:FOR
N=1 TO 500:NEXT N
270 POKE DLIST,SCR1B:POKE DLIST+1,SCR1A:FOR
N=1 TO 500:NEXT N:GOTO 260
1000 REM WRITE
1005 FOR L=1 TO LEN(TEXT$):INV=0:TEXT=
ABC(TEXT$(L,L)):IF TEXT>127 THEN TEXT=
TEXT-128:INV=1
1010 IF (TEXT<32) THEN TEXT=TEXT+64:
GOTO 1030
1020 IF TEXT>31 AND TEXT<96 THEN TEXT=
TEXT-32
1030 START=40*Y+X+L-1:LOC=START:FOR L2=
0 TO 7:BYTE=PEEK(57344+(8*TEXT)+L2):IF INV=
1 THEN BYTE=255-BYTE
1040 FOR L3=1 TO H:POKE SCR+LOC,BYTE:LOC=
LOC+40:NEXT L3:NEXT L2:NEXT L
1050 RETURN
2000 REM LINE
2010 FOR L=BX TO EX STEP BX:FOR L2=BY TO EY
STEP BY
2020 IF COL=1 THEN PLOT L,L2:PLOT L+1,L2+1:
PLOT L+2,L2:PLOT L+3,L2+1:PLOT L+5,L2:PLOT
L+6,L2+1
2030 IF COL=2 THEN PLOT L,L2:PLOT L+1,L2+1:
PLOT L+2,L2:PLOT L+3,L2+1
2040 NEXT L2:NEXT L:RETURN
3000 FOR N=18 TO 121 STEP 8:PLOT N,92:
DRAWTO N,103:PLOT N+2,92:DRAWTO N+2,103:
PLOT N+5,92:DRAWTO N+5,103:NEXT N
3010 Y=94:TEXT$="Colour 7":GOSUB NRITE
3020 FOR N=19 TO 121 STEP 8:PLOT N,105:
DRAWTO N,116:PLOT N+2,105:DRAWTO N+2,116:
PLOT N+5,105:DRAWTO N+5,116:NEXT N
3030 Y=107:TEXT$="Colour 8":GOSUB WRITE
3040 RETURN
```



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How good are your reactions?

Another five games for the Commodore 64 — a computer that seems, from the amount of software being released — to be rapidly increasing in popularity

Creator's Revenge £7.95

Mogul, 90 Regent St, London
W1R 5PT

My four year old loves this sort of game — waggle the joystick and fire like mad while sound and colours pour forth. For me, the enjoyment won't be so lasting. Yes, there are some splendid targets to shoot at: there are ants, butterflies, birds, wasps, rockets, tanks and even bonus "treasure" to collect as it slips down amongst the nasties. But the addiction soon wears off.

There is little or nothing in the packaging to indicate what to expect, and the address of the supplier is nowhere to be found. It has a pause facility, for when the telephone rings, and a restart option for when you lose a life early on. I especially like the ability to type 'EX' and exit the game back to BASIC. That's so much better than turning off and on again — other programmers please note.

Once upon a time, when Space Invaders was giving way to Galaxian, this would have been knockout. Now it's good but unexceptional, and a little bit overpriced. The computer games industry is a place of tough competition. If this company, wherever they are, can't do better than this one, they won't be lasting very long.

B.J.

instructions	60%
playability	80%
graphics	85%
value for money	60%

★ ★ ★

Manic Miner £7.95

Software Projects, Bear Brand Complex, Allerton Rd, Liverpool

This game is excellent, not perfect, not incapable of improvement, but definitely top class. It's not even totally new as it was translated from a Spectrum program. But the 64's sprites, colour, graphics and sound are all used to produce this remarkable piece of software.

The concept is in the Crazy Kong mould, thus there are 20 screens to negotiate. The assortment of obstacles to be jumped over, platforms to be leapt from and pitfalls to avoid is the product of an extremely fertile mind.

Unfortunately, the first screen is one of the hardest and since there is no choice of starting screen, I can only comment on the first half dozen. Once you sort out exactly where and when you make your moves, it's a case of maintaining your reactions and concentration. Mine usually desert me at the vital moment. It does have a pause facility, music on/off option and choice of keyboard or joystick control, all useful features. A word of warning: it takes 13½ minutes to load! Mind you, it's worth waiting for.

B.J.

instructions	80%
playability	95%
graphics	97%
value for money	92%

★ ★ ★ ★ ★

Crazy Balloon £7.95

Software Projects, Bear Brand Complex, Allerton Road, Liverpool

Another arcade classic translated and enhanced for the Commodore 64.

In case you don't know the idea, you guide a balloon around prickly mazes — one touch and pop! The balloon sways gently from side to side and some obstacles have to be passed at just the right angle. To add to your problems, there are assorted mobile balloon bursting shapes to dodge, plus bonus squares that you do want to bump into to collect the bonus. Scores for each of the 26 screens depend on how fast you complete them. You start with five lives but gain an extra one for each screen successfully completed.

There is a choice of keyboard or joystick control and I found the joystick very smooth and pleasant to use. Colour and graphics generally are pleasing, with a lovely looking and sounding balloon burst.

Moans: I'd prefer a choice of entry screen, it displays score of "Player 1", but there is no two player option as far as I can tell, the packaging and instructions aren't terribly helpful. Nevertheless, it's a good game, tolerably well implemented.

B.J.

instructions	80%
playability	85%
graphics	82%
value for money	70%

★ ★ ★ ★

Annihilator 2 £5.99

Mogul, 90 Regent St, London
W1R 5PT

Annihilator 2 seems to be a descendant of the popular arcade game Defender. It is not quite as good but almost equally addictive.

The object is to blast everything in sight, except certain space beings and debris. You may fire horizontally and move in all directions. All this would be quite easy if it was not for the fact that the objects tend to move in your direction. If you do not keep moving it's fairly certain you will not last more than a few seconds. The game is played on a series of levels, each consecutive level being harder.

You need fast reactions and a high quality joystick is necessery (I used a Quickshot). The game is harder to play using a cheaper, less sensitive model.

The program loaded well, although it is only saved on one side. I would have thought it common practice to use both sides by now.

The graphics could be improved considerably in places. For the sake of a few more hours when writing the program, a potentially very good game has been downgraded.

The instructions, on a program title page, are badly set out and hard to read.

K.I.

instructions	15%
playability	70%
graphics	50%
value for money	75%

★ ★ ★ ★

Paratroopers £5.99

Rabbit, 380 Station Rd, Harrow, Middlesex

A game for people with limited skill and a perverted sense of humour.

You have control of a gunner, who has to shoot down helicopters and the paratroopers who jump out of them. Every now and then a bomber comes over. You cannot shoot these, but must shoot or dodge the bombs they drop.

You have only one life, which you lose if a bomb or a paratrooper lands on you. If you allow too many paratroopers to land, they march off and fetch a tank to shoot you with; your controls freeze when this happens, so you just have to sit there and wait to be blown up.

The graphics are very good. The gun rotates nicely, and the helicopters and tank are very well drawn. Sound effects are limited to boom! boom! bang!

You can choose vertical or angled fire, a stationary or mobile gun base, single shot or rapid fire. I found rapid vertical fire with a mobile base was best. The game still didn't last long, though.

It seems a shame that such good graphics and programming should have been wasted on a game like this.

M.N.

instructions	20%
playability	60%
graphics	80%
value for money	40%

★ ★

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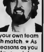

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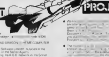

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Aries
TI-99/4A £6

Stamless Software, 10 Alstone Rd, Stockport, Cheshire SK4 5AH

A dodge-em and blast-em type game set in outer space.

Your space pod descends from its mothership at top left of the screen. This must be manoeuvred through debris that continually crosses its path until in line with an alien space craft and its cargo. After blasting the alien and collecting its treasure you return to the mothership before your pod's fuel runs out. This continues until all cargo has been collected. The number of these depend on the rounds completed, there being five in all. After every round an alien control ship appears which must be blasted six times in succession to destroy.

Points are awarded for the number of cargoes collected and ships destroyed as multiples of rounds played and skill level adopted. There is a choice of five skill levels. Extended BASIC and joystick are needed.

At the end of a game the score is given and if sufficiently high you enter the Hall of Fame. Here there is an option to save and load your high scores on file. Unfortunately the scoring system of the game is at fault as in all following games the progrere fails to reset to zero.

J.W.

instructions	50%
playability	75%
graphics	70%
value for money	80%

★ ★ ★ ★

Skramble
Dragon 32K £8

Microdeal, 41 Truro Rd, St Austell, Cornwall PL25 5JE

Starting with three spacefighters you must penetrate the enemy's defences which are on five levels. On level one you must avoid the ground defences. On level two you must fly through a cave where there are UFOs. The next level, also in the caves, contains meteorites. Levels four and five are a fortress and a maze respectively. Points are gained for each enemy destroyed and there are fuel dumps along the way. It is important to destroy some of these to maintain your fuel level, displayed on screen. An extra ship is awarded at 10 000 points.

Two players can compete and you can use joysticks or keys. I prefered to use keys for finer control. The screen display is a side view of the area over which you are flying. At the top the score for both players and the highest score is displayed. The number of fighters for each player is also shown. Your fighter can fire a cannon and launch two bombs at a time. At the end of the game there is a high score table.

Graphics are smooth flowing and I quite enjoyed playing this game, although the price could be lower. Full instructions are on the insert, but in very small type.

J.E.M.

instructions	75%
playability	70%
graphics	80%
value for money	70%

★ ★ ★

Stonkers
48K Spectrum £5.50

Imagine, 5 Sir Thomas Street, Liverpool L1 6BW

Having invaded you command the port and supply facilities for tanks, artillery, and infantry. You keyboard or joystick over the battle area, divided by a river with a single bridge, with a large cursor. This cursor area is examined in larger detail by pressing fire. In magnified mode, using fire button and smaller cursor, you deploy your forces to new positions, check their status and move supply trucks to them.

A "Tickertape" displays a sample message 'Division needs supply". It would be helpful to know which division. Mine stopped and gave "instructions understood' long before I had got them where I wanted. And my supply trucks must be black marketeering, since they rarely reach where I sent them. Even my infantry have a distressing tendency to die miles from the enemy and yards from the supply area.

Perhaps I am not cut out to command or the program is bugged. I tried two different cassettes and both sides of each either crashed or NEWed after about 10 minutes of play.

Pleasant graphics, not a lot of movement. Too little action for arcaders — not enough information for strategists. A bit disappointing, really, from Imagine.

D.C.

instructions	90%
playability	40%
graphics	60%
value for money	70%

★ ★ ★

Tobor
48K Spectrum £5

CCI, Units 2, 3 and 4, Shire Hill Industrial Estate, Saffron Walden, Essex CB11 3AQ

Exciting instructions and a very attractive title screen, but the game fails to live up to its image.

According to the blurb, you have made a forced landing on a distant planet and must collect fuel capsules to escape. Unfortunately the planet Kalanum is populated by rather hostile robots who are understandably upset that you are stealing their fuel. They patrol, ready to gun you down. They are quite stupid too — for no apparent reason they will often bump into each other and disintegrate.

A tediously long introduction has to be sat through at the beginning of each life as your humanoid and the robots take up positions. On losing a life the computer plays a very downbeat version of the Funeral March.

Use of graphics is very limited, although sound and colour are quite good. You soon find to your cost that the green robots are indestructible.

Although I cannot understand why, I found the game quite compulsive at first. This soon wears off when you are faced with more and more robots to disintegrate.

T.B.

instructions	65%
playability	40%
graphics	35%
value for money	45%

★ ★

Lunar Rescue
48K Spectrum £5.95

Lyversoft, 66 Lime St, Liverpool L1 1JN

The scenario is quite straightforward — you must navigate a rescue craft from the mother ship at screen top to the moon surface at screen bottom to rescue a team of marooned scientists. You are only able to carry one passenger at a time so six trips are needed through space littered with asteroids. Having successfully completed the mission the cycle is repeated.

There is a joystick option. With only three controls, left right and thrust this is far from essential. An annoying feature is having to enter a keyboard/joystick option after each game. I would have thought this only necessary after initial loading.

Graphics are nicely presented but it does look odd to see the asteroid belt halt just because a scientist is running to the rescue craft. Lyversoft claims "machine code sound", but my version was as silent as real space.

I found the game too predictable and slow moving on any of the four skill levels even with my clumsy fingers. I doubt its ability to sustain long term interest.

D.J.

instructions	70%
playability	60%
graphics	65%
value for money	40%

★ ★

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TI 99/4A

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BEST SELLERS

Top Ten programs for the Commodore 64

1	Space Shuttle	Microdeal (3)
2	Falcon Patrol	Virgin (8)
3	Crazy Kong	Interceptor (2)
4	Spirates and the Snowman	CBM (—)
5	Cosmic Convoy	Tasksat (5)
6	Styx	Supersoft (—)
7	Motormania	Audiogenic (10)
8	Transylvanian Tower	Richard Shephard (—)
9	Ship of the Line	Richard Shepherd (—)
10	Hover Bovver	Llamasoft (6)

Top Ten Programs for the Spectrum

1	Atic Atac	Ultimate (1)
2	Lunar Jetman	Ultimate (4)
3	Stonkers	Imagine (—)
4	Manic Miner	Bug Byte (3)
5	Chequered Flag	Psion (2)
6	Hunchback	Ocean (9)
7	The Pyramid	Fantasy (—)
8	Mr Wimpy	Ocean (—)
9	3D Ant Attack	Quicksilva (8)
10	Flight Simulation	Psion (6)

Compiled by W H Smith Figures in brackets are last week's positions

Top Ten Programs for the ZX81

1	Football Manager	Addictive (3)
2	Asteroids	Quicksilva (1)
3	Flight Simulation	Sinclair (—)
4	Mothership	Sinclair (—)
5	Space Raiders	Sinclair (—)
6	Chess 1K	Sinclair (—)
7	Invaders	Quicksilva (6)
8	Defenders	Quicksilva (4)
9	Crazy Kong	PSS (9)
10	ZX Assember	Bug Byte (8)

Compiled by Websters Figures in brackets are last week's positions

Top Ten programs for the Dragon

1	The King	Microdeal (—)
2	Eight Ball	Microdeal (2)
3	Scramble	Microdeal (4)
4	Leggit	Imagine (3)
5	Grand Prix	Salamander (5)
6	Space Shuttle	Microdeal (1)
7	Dragonchess	Oasis (5)
8	Transylvanian Tower	Richard Shepherd (7)
9	Intergalactic Force	Microdeal (9)
10	Danger Ranger	Microdeal (—)

Compiled by Websters Figures in brackets are last week's positions

Top 30

1	Manic Miner	Software Projects	Spectrum (2)
2	Hunchback	Ocean	Spectrum (1)
3	The Hobbit	M House	Spectrum (6)
4	Jetpac	Ultimate	Spectrum (5)
5	3D Ant Attack	Quicksilva	Spectrum (7)
6	Lunar Jetman	Ultimate	Spectrum (4)
7	Harrier Attack	Durrell	Spectrum (3)
8	Valhalla	Legend	Spectrum (14)
9	Atic Atac	Ultimate	Spectrum (13)
10	Hunchback	Ocean	CBM 64 (—)
11	Falcon Patrol	Virgin	CBM 64 (10)
12	Hobbit	M House	CBM 64 (12)
13	Chuckie Egg	A & F	Spectrum (20)
14	Kong	Ocean	Spectrum (8)
15	Penetrator	M House	Spectrum (11)
16	Frogger	Microdeal	Dragon (—)
17	The King	Microdeal	Dragon (16)
18	Zzoom	Imagine	Spectrum (9)
19	Chequered Flag	Psion	Spectrum (17)
20	Cuthbert in the Jungle	Microdeal	Dragon (16)
21	Hunchback	Superior	BBC (23)
22	Arcadia	Imagine	VIC-20 (21)
23	Manic Miner	Software Projects	CBM 64 (—)
24	Skrambler	Solor	VIC 20 (26)
25	Mini Kong	Anirog	VIC-20 (22)
26	Hunchback	Ocean	Oric (—)
27	Crazy Kong	Interceptor	CBM 64 (28)
28	Jetpac	Ultimate	VIC-20 (25)
29	Bugaboo (The Flea)	Quicksilva	Spectrum (—)
30	The Hobbit	M House	Oric (—)

Compiled by PCS Distribution (0254 691211) and sanctioned by the Computer Trade Association Chart is for retail sales in individual outlets in the UK and Northern Ireland for the fortnight ended March 3

Top Ten Programs for the VIC-20

1	Wacky Waiters	Imagine (8)
2	Wizard and the Princess	M House (2)
3	Snooker	Visions (6)
4	Gridrunner	Llamasoft (—)
5	Flight Simulator	Davenport (8)
6	Bewitched	Imagine (1)
7	Catcha Snatcha	Imagine (—)
8	Abductor	Llamasoft (15)
9	Arcadia	Imagine (10)
10	Tomb of Drewan	Audiogenic (—)

Compiled by Websters Figures in brackets are last week's positions

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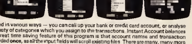

But that's not all, not by a long way. This program **automatically** raises a corresponding debit or credit for every entry, and will even open a new account if an entry features an unrecorded account name.
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I'm lost in the jungle... help me get back to base camp

...that's the plea from Steve Lucas, who wrote Jungle Search for the BBC and Electron computers. Type it in before something dreadful happens

I have always wanted to travel and see the world and when I was invited to join the 1984 expedition to Africa to search for the legendary Sea of Blue Water, I leapt at the chance

I am not so sure now that I did the right thing!

How it works

60 game lost when error is generated
70 disable escape key
80 disable break key
90 selects MODE 6 and chooses colour
100-110 initialise variables
120 defines envelope for sound effects
130 call instructions
140-180 fill arrays for locations, items and words understood
190-520 main control loop, repeats until location 24 (base camp) is reached
330 waits for response
340-510 calls PROCedure appropriate to input word
530-540 end of game
560-670 instructions PROCedure
660 waits for space bar to be pressed
680 data for sound effects
690-900 data for games " rooms"
910-920 data for objects
930 data for words understood
940-2220 PROCedures which have self explanatory titles, e.g. PROCget

The party leader sent me off yesterday to search for food and guess what ... I have got myself lost in the middle of the jungle. Please help me to find my way back to base camp by telling me what to do in the form of two-word sentences.

Unfortunately, I do not speak very good English and if you find that I don't seem to understand you, try another word

Here is a list of some of the words I understand

GO, N,S,E,W, UP, DOWN, IN, OUT, PRAY, HELP, EXAMINE, SEARCH, SWIM, TALK, SAY, DROP, LEAVE, INVENTORY, SCORE, WAIT, DIG, THROW, JUMP, DIVE, ROW, CUT, CHOP, MAKE, UNLOCK, EAT, DRINK, SAIL, LOOK, RUB

```
   10 REM ** JUNGLE SEARCH **
   20 REM ** AN ADVENTURE GAME FOR THE BBC AND ELECTRON
 COMPUTERS **
   30 REM ** BY  Steve W. Lucas **
   60 ON ERROR X$="a spider just came up and bit me'":P
ROClose
   70 *FX229,1
   80 *KEY10 OLD|M RUN|M
   90 MODE6:VDU19,0,1,0,0,0
  100AB%=0:AA%=0:AC%=0:AD%=0:AE%=0:AF%=0:AG%=0:AH%=0
  110AI%=0:AJ%=0:P%=2
  120 ENVELOPE1,2,6,0,0,255,0,0,126,0,0,-126,126,126
  130 PROCinstructions
  140CLS:DIM S%(24,4),Q$(24),X$(80),G$(50),Y$(3),B%(30,
1),N$(30),N%(30)
  150Y$=""
  160 FORX=1TO24:READQ$(X):FORY=1TO4:READS%(X,Y):NEXTY,
X
  170 FORX=1TO14:READG$(X),B%(X,1):NEXTX
  180 FORX=1TO18:READN$(X),N%(X):NEXT
  190   REPEAT
  200IFP%=10ANDAG%<>1THENX$="I fall into a deep hole be
neath some    straw... It must have been a trap'''":PRO
Close
  210PRINT "I am :-"''Q$(P%)
  220A$="":IFS%(P%,1)>0THENA$="North"
  230IFS%(P%,2)>0ANDLEN(A$)>0THENA$=A$+",South"ELSEIFS%
(P%,2)>0THENA$="South"
  240IFS%(P%,3)>0ANDLEN(A$)>0THENA$=A$+",East"ELSEIFS%(
P%,3)>0THENA$="East"
  250IFS%(P%,4)>0ANDLEN(A$)>0THENA$=A$+",West"ELSEIFS%(
P%,4)>0THENA$="West"
  260PRINT  "I can go :-"  A$
  270E=0:FORT%=1TO19:PP%=0:IFB%(T%,1)=P%THENPP%=1
  280IFPP%=1THEN300
  290NEXT:GOTO330
  300IFE=0THENPRINT"I can see:-"
  310PRINT G$(T%):E=E+1:GOTO290
  320 IFP%=1)THENPRINTY$
  330PRINT "What do you think I should do ":INPUTZ$
  340B$=LEFT$(Z$,2):C$=LEFT$(Z$,3):CLS:VDU7:K=0
  350IFC$="LOO"THENK=1ELSEIFC$="ACD"THENPRINT"What do y
ou think this is     some sort  of game ?":K=1
  360IFC$="RUB"THENPRINT"Don t be silly'":K=1
  370IF(B$="N"ORLEFT$(Z$,4)="GO N")ANDS%(P%,1)<>0THENP%
=S%(P%,1):K=1
  380IF(B$="S"ORLEFT$(Z$,4)="GO S")ANDS%(P%,2)<>0THENP%
=S%(P%,2):K=1
  390IF(B$="E"ORLEFT$(Z$,4)="GO E")ANDS%(P%,3)<>0THENP%
=S%(P%,3):K=1
  400IF(B$="W"ORLEFT$(Z$,4)="GO W")ANDS%(P%,4)<>0THENP%
=S%(P%,4):K=1
  410IFK=0AND(B$="N"ORB$="S"ORB$="E"ORB$="W")THENPRINT"
```

Hints on conversion

- Few computers have REPEAT UNTIL loops. Then main REPEAT UNTIL loops from line 190-520 can be replaced by line 520 IF P% (less than or greater than) 24 THEN GOTO 200

- The REPEAT UNTIL loop in line 2160 is used to provide a time delay. Use a FOR/NEXT loop, e.g. 2140 K=1 PRINT "O K" FORX=1TO1000 NEXTX

- The PROCedures used will have to be replaced by subroutines, e.g. Line 130 will need to be replaced by 130 GOSUB 570 (The line after DEFPROC statement) and all ENDPROCs will need replacing by RETURNs

- The biggest problem in converting this program for other machines is likely to be encountered when you try to enter lines of over 40 characters. Machines like Orics and Commodore 64s will not accept these long lines. If you split long lines beginning with IF THEN statements, you will need to start the second line with the same IF THEN statement!

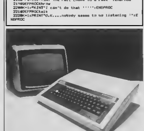
Variables

Resident integer variables A% Z% are used widely so as to increase the speed of the game
P% current location
AA%-AJ% flags to test if certain events have taken place
E% flag to test if item is there
Z$,C$,B$,L$ holds words entered
S%(X,Y) holds the map
Q$(X) holds descriptions of locations
G$(x) holds descriptions of objects
Y$(X) holds items carried
B%(X,1) holds locations items found in
N$(x) holds words understood
N%(x) pointer for words understood
Y$ holds message
X$ holds message for losing game
H%,D%,D,X,Y used as counters in FOR NEXT loops
R holds check for number of item

Important note: Do not type in lines 60-80 until you have fully debugged the program. Then SAVE a copy before RUNning

```
I can"t go that way  :K=1
  420IFC$="ROW"ORC$="PAD"ORLEFT$(Z$,4)="GO R"THENPROCra
ft
  430IFC$="DRI"THENPRINT"I can t see anything to drink'
";K=1 ELSEIFC$="EAT"THENPRINT"There s nothing to eat'";
K=1
  440 IFB$="UP"THENPROCup ELSEIFC$="DOW"THENPROCdown EL
SEIFC$="IN"THENPROCin ELSEIFC$="OUT"THENPROCout ELSEIFC
$="UNL"THENPROCunlock
  450IFC$="REA"THENPROCread ELSEIFC$="OPE"THENPROCopen
  460IFC$="CUT"THENPROCcut ELSEIFC$="CLI"THENPROCclimb
ELSEIFC$="JUM"ORC$="DIV"THENPROCjump ELSEIFC$="CHO"ORC$
="FIL"THENPROCfell
  470IFC$="WAI"THENPROCwait ELSEIFC$="DIG"THENPROCdig E
LSEIFC$="THR"THENPROCthrow ELSEIFC$="SAY"ORC$="TAL"ORC$
="ASK"THENPROCtalk
  480 IFC$="HEL"THENPROChelp ELSEIFC$="PRA"THENPROCpray
 ELSEIFC$="SWI"THENPROCswim ELSEIFC$="BUI"ORC$="MAK"ORC
$="CON"THENPROCmake
  490 IFC$="KIL"ORC$="MES"ORC$="ATT"ORC$="STA"ORC$="HIT
"THENPROCattack
  500 IFC$="GET"ORC$="GRA"ORC$="TAK"THENPROCget
  510IFC$="DRO"ORC$="LEA"THENPROCdrop ELSEIFC$="INV"THE
NPROCinventory ELSEIFC$="EXA"THENPROCexamine ELSEIFC$="
SEA"THENPROCsearch
  520 UNTILPZ=24
  530PRINT   "WELL DONE'''" "You have solved this adven
ture'":RESTORE:FORX=1TO13:READD:SOUND1,1,D,3:NEXT
  540 END
  550 END
  560 DEFPROCinstructions
  570 CLS:PRINT   TAB(11);"JUNGLE SEARCH"
  580PRINT    TAB(8);"<C> 1900 S W. Lucas"
  590 RESTORE
  600 FORX=1TO17:READA:SOUND1,1,A,4:NEXT
  610 PRINT TAB(10);"Please help me '"
  620PRINT "I am a member of the 1900 expedition,    whi
ch has come to Africa in search of   the sea of blue wa
ter."
  630PRINT "The party leader has sent me in search  of
food, but I seem to have got lost."
  640PRINT "Help me to find my way back to safety."
  650PRINT  "Press     <Space Bar>     to play game."
  660 REPEAT UNTIL GET=32
  670 ENDPROC
  680 DATA 53,69,53,69,89,53,197,53,149,53,101,53,117,1
37,145,89,53
  690 DATAat the bottom of a sheer cliff face.,0,0,2,0
  700 DATAon a muddy footpath,0,0,3,1
  710 DATAin thick undergrowth,0,0,0,2
  720 DATAby a cave entrance,0,0,5,3
  730 DATAin a dark cave  Water is dripping down  the s
limy walls.,0,6,0,4
  740 DATAby an old wooden door.,5,0,0,0
  750 DATAin a narrow passage.,9,0,0,6
  760 DATAin a secret laboratory. There is a largelizar
d in a wooden cage here.,0,7,0,0
  770 DATAon a straw covered footpath ,3,10,0,0
  780 DATAamongst several very tall trees. The    floor
 here is covered with straw. There is a deep pit here.,
9,11,0,0
  790 DATAon the banks of a fast flowing river.,10,0,0,
0
  800 DATAon a raft in the middle of a fast       flowi
ng river.,0,0,0,0
  810 DATAin a sheltered cove,0,14,16,0
  820 DATAin a steamy swamp,13,0,15,0,in a steamy swamp
,16,15,15,14,in a steamy swamp,16,15,17,16
  850 DATAin a steamy swamp. A rope hangs down    from
an overhanging tree.,2,0,0,16
  840 DATAat the top of a rope. A large monkey can be se
en amongst the branches of the tree,0,0,19,0
  860 DATAamongst the branches of a very tall tree. cre
eping vine seems to be firmly      attached to the tree
.,0,0,0,18
  860 DATAon a narrow platmau. A creeper hangs    from
above. Spires of smoke can be seen in the distance.,2,0
,21,0
  870 DATAon a narrow plateau. ,0,0,0,20
  880 DATAon a mountain track. The track is soft  under
foot. The path crumbles to the east ,0,0,23,0
  890 DATAby a river. There is a camp on the far  side
,0,0,0,22
  900 DATAin the expedition s camp.,0,0,0,0
  910DATA a sharp knife,1,a plank of wood,7,a small key
,9,a small spider,15,a giant lizard,16,a monkey,19,a pi
le of bones,18
  920DATA an axe,5,a coil of rope,0,a strange looking p
lant,4,a native on the river bank,12,a piece of paper,2
1,a crocodile,23,Tarzan...swinging from tree to tree,14
  930DATAKNIFE,1,PLANK,2,WOOD,2,KEY,3,SPIDER,4,LIZARD,5
,MONKEY,6,BONES,7,AXE,8,COIL,9,ROPE,9,PLANT,10,FLOWER,1
0,NATIVE,11,PAPER,12,PIECE,12,CROCODILE,13,TARZAN,14
  940DEFPROCget
  950K=1:PROCcheck
  960IFLX<>1THENENDPROC
  970EX=0
  980FORHX=1TO14:IFB%(HX,1)=PXANDB%(HX(R),1)=PXTHENEX=1
  990NEXT
 1000IFEX=0THENPRINT"I can t see it here'":ENDPROC
 1010IFR=1THENARX=1 ELSEIFR=4THENAPX=1 ELSEIFR=9THENAHX
=1
 1020IFR=5THENX$="It bites me ..It s venom surges throu
gh my blood":PROClose
 1030IFR=6THENX$="The stupid thing...It jumps at my thr
oat":PROClose
 1040IFR=12ORR=13THENX$="I fall into a stupor as the fl
ower sends a jet of strange pollen into my face":PROClos
e
 1050IFR=17THENPRINT"Don t be stupid''''":ENDPROC
 1060(FR=10ORR=14THENPRINT"how am I supposed to do that
'":ENDPROC
 1070IFR=15ORR=16THENADX=1
 1080EX=0:FORDX=1TO3:IFV$(DX)=""THENV$(DX)=A$(HX(R)):EX
=1:DX=5
 1090NEXT
 1100IFEX=0THENPRINT"I m sorry I can t carry any more'"
:K=1:ENDPROC
 1110B%(HX(R),1)=0:ENDPROC
 1120DEFPROCcheck
 1130L$="":FORHX=1TOLEN(Z$)
 1140IFMID$(Z$,HX,1)=" "THENL$=RIGHT$(Z$,(LEN(Z$)-HX)):
HX=HX+40
 1150NEXT
 1160R=0:LX=0:IFLEN(L$)<2THENENDPROC
 1170FORHX=1TO16:IFLEFT$(H$(HX),LEN(L$))=L$ THENLX=1:R=
HX
 1180NEXT
 1190ENDPROC
 1200DEFPROCdrop
 1210PROCcheck
 1220K=1:IFLX<>1THENPRINT"I can t see a ";L$:ENDPROC
 1230EX=0
 1240FORDX=1TO3:IFV$(DX)=A$(HX(R))THENV$(DX)="":EX=1
 1250NEXT:IFEX<>1THENPRINT"I haven t got it'":ENDPROC
 1260B%(HX(R),1)=PX
 1270IFR=1THENARX=0 ELSEIFR=15ORR=16THENADX=0 ELSEIFR
=4THENAPX=0  ELSEIFR=9THENAHX=0
 1280 IFR=2ANDPX=9THENAGX=1:PRINT"I slide the plank ove
r the lion trap"
 1290ENDPROC
 1300DEFPROCinventory
 1310K=1:PRINT"I have :-":FX=0
 1320FORHX=1TO3:IFV$(HX)<>""THENPRINTV$(HX):FX=1
 1330NEXT:IFFX=0THENPRINT"Not a thing'"
 1340PRINT:ENDPROC
 1350DEFPROCcut
 1360K=1:IFAHX<>1THENPRINT"I have nothing to do that wi
th'":ENDPROC
 1370IFPX<>3THENPRINT"There s nothing here to cut'''":E
NDPROC
 1380 IFABX=0THENABX=1:PRINT"That s done the trick'":S%
(3,2)=9:ENDPROC
 1390IFABX=1THENABX=2:PRINT"I have managed to cut a way
through'":S%(3,3)=4:ENDPROC
 1400PRINT"nothing happened'":ENDPROC
 1410DEFPROChelp
 1420K=1:IFPX=3THENPRINT"I think I can see a way throug
h'":ENDPROC
 1430IFPX=9THENPRINT"I d watch out'":ENDPROC
 1440PRINT"Sorry I don t have a clue'":ENDPROC
 1450DEFPROCpray
 1460K=1:PRINT"O.K.":RESTORE:FORX=1TO13:READY:SOUND1,1,
Y,3:NEXT
 1470PRINT"That made me feel better'":ENDPROC
 1480DEFPROCdig
 1490K=1:PRINT"I need a spade''":ENDPROC
 1500 DEFPROCup
 1510K=1:IFPX=17THENPX=18:PRINT"O.K.":ENDPROC
 1520IFPX=22THENPRINT"It s too far to jump'":ENDPROC
 1530PRINT"I can t do that here'":ENDPROC
 1540DEFPROCdown
 1550 IFPX=18THENPX=17:PRINT"O.K.":ENDPROC
 1560 IFPX=19THENPRINT"O.K.":PX=20:ENDPROC
 1570 IFPX=21THENPRINT"There s no ladder you know'":END
PROC
 1580PRINT"not here'''":ENDPROC
 1590DEFPROCjump
 1600 IFPX=21THENPRINT"made it. The ground is soft here
'":PX=22:ENDPROC
 1610PRINT"I can"t do that here you know'":ENDPROC
 1620DEFPROCclimb
 1630 K=1:IFPX=20THENPX=19:PRINT"O.K.''":ENDPROC
 1640PRINT"Not here '''":ENDPROC
 1650DEFPROCswim
 1660K=1:IFPX=23THENPROCch:IFACX=1THENPRINT"O.K.    made
 it '''":PX=24:ENDPROC
 1670IFPX=11ORPX=12THENX$="I fall into a deep whirlpool
 and drown":PROClose
 1680PRINT"Don t be silly'":ENDPROC
 1690DEFPROCch
 1700K=1:IFACX<>1THENX$="The crocodile bites a large ch
unk out of me'":PROClose
 1710 ENDPROC
 1720 DEFPROClose
 1730 RESTORE:CLS:PRINT X$'  "I AM DEAD'''''":FORX=1TO1
3:READN:SOUND1,1,D,3:NEXT
```

```
 1740 PRINT' "Would you like to play again?"
 1750 REPEAT:A$=GET$
 1760 UNTIL A$="Y" ORA$="N"
 1770 IFA$="Y"THEN RUN ELSE PRINT "Thank you for playin
g!":END
 1780DEFPROCattack
 1790K=1:IFP%=23ANDAA%<>1THENPRINT"Too slow'....":X$="It
 moves over and kills me!":PROClose ELSEIFP%=23THENPRIN
T"O.K....":G$(13)="a dead crocodile":AC%=1:ENDPROC
 1800IFP%=15ORP%=16THENPRINT"It s too fast for me!":END
PROC
 1810IFP%=19THENX$="It didn t like that!":PROClose
 1820IFP%=12THENPRINT"He s too far away!":ENDPROC
 1830IFP%=14THENX$="Tarzan doesn t like that!":PROClose
 1835PRINT"Who s a silly billy then?":ENDPROC
 1840 DEFPROCread
 1850K=1:IFAD%<>1THENPRINT"I ve not got anything to rea
d":ENDPROC
 1860PRINT"The paper bears the message."   "BEWARE OF C
ROCODILES!!!!":ENDPROC
 1870DEFPROCin
 1880K=1:IFP%<>6THENPRINT"Not here!!!":ENDPROC
 1890IFAE%<>1THENPRINT"The door is locked!":ENDPROC
 1900 PRINT"O.K.":P%=7:ENDPROC
 1910 DEFPROCout
 1920K=1:IFP%=7THENP%=6:ENDPROC
 1930PRINT"How can I go out when I m not IN!!!":ENDPROC
 1940 DEFPROCunlock
 1950K=1:IFP%<>6THENPRINT"Don t be stupid!":ENDPROC
 1960IFAF%<>1THENPRINT"No key!!!!":ENDPROC
 1970PRINT"The key turns and the door opens with a dist
ant rumble!..":AE%=1:ENDPROC
 1980 DEFPROCopen
 1990K=1:IFP%<>6THENPRINT"Don t be stupid!":ENDPROC
 2000IFAE%<>1THENPRINT"The door is locked!":ENDPROC
 2010PRINT"It s already open.....!":ENDRPROC
 2020DEFPROCfell
 2030K=1:IFP%<>10THENPRINT"How am I supposed to do that
 here dummy":ENDPROC
 2040IFAH%<>1THENPRINT"I have no axe!":ENDPROC
 2050PRINT"I chop the trees down and now have a    pile
 of logs.":AI%=1:G$(10)=G$(10)+" There is a pile of log
s here."
 2060ENDPROC
 2070DEFPROCmake
 2080K=1:IFP%<>10THENPRINT"I can t do that here!":ENDPR
OC
 2090 IFAI%<>1THENPRINT"I can t do that just yet!":ENDP
ROC
 2100 PRINT"I build a raft and push it down to the  riv
er.":P%=11:Y$="There is a raft here.":AJ%=1:ENDPROC
 2110DEFPROCraft
 2120K=1:IFP%<>11THENPRINT"don t be silly":ENDPROC
 2130IFAJ%<>1THENPRINT"I can t do that just yet! :ENDPR
OC
 2140 P%=12:PRINT"O.K.":ENDPROC
 2150 DEFPROCwait
 2160K=1:PRINT"O.K.":TIME=0:REPEAT UNTIL TIME=100
 2170IFP%<>12THENENDPROC
 2180 P%=13:PRINT"The raft comes to a rest!":ENDPROC
 2190DEFPROCthrow
 2200K=1:PRINT"I can't do that !!!!":ENDPROC
 2210DEFPROCtalk
 2220K=1:PRINT"O.K....nobody seems to be listening !":E
NDPROC
```



Prices rise over IBM

This week I thought I would let you know what the price trends of some of the major home computer manufacturers have been lately Although people (me for one) feel that the IBM PCjr is quite over priced for what it offers, there is no question that the relatively high price of the two models (about $670 and $1270) will serve to stabilise the market, at least price-wise

Not only that, but such a move will also get customers used to paying more not only for the computers themselves but also for supplies and accessories As soon as the IBM PCjr was announced and as soon as the industry learned of the demise of TI's 99/4A, several manufacturers announced price increases

Atari added $40 to the dealer cost of its 600 and 800 XL models (which incidentally completely sold out by the end of last month) It also added $15 to the dealer cost of its Model 1027 printer and 1050 disc drive unit Even before it becomes widely available, Coleco has increased the price of its Adam about 24 per cent to $650 at the wholesale level

The retailers of computers that will compete against the PCjr feel no threat at all Most believe that some of the limiting factors of the PCjr will actually help them sell their competing lines It is also interesting to note that Commodore has not reacted to the re pricing of its competitors any more than it has reacted to the introduction of the Adam or the PCjr

* * *

Ever wonder how many computers we have over here? Well, It turns out that computers can be found in approximately 15 per cent of all American households, and that there are about seven million installed micros altogether In the same survey that revealed these figures it was also determined that most people who do not buy computers do so for one of two main reasons the first is lack of need, and the second is high prices The survey also revealed that people may change their minds about micros when they perceive that their children may need one to succeed in school

* * *

While most interactive videodisc/microcomputer interface systems are usually quite expensive, a new low-cost system has been recently announced by a company called Lasersoft The unit is called the Micro-Ed controller box, and has been announced for under $200!

It has been designed to work with the Commodore 64, 1541 disc drive, and the Pioneer 8210 videodisc player (and probably its European equivalent) The unit itself is only slightly larger than a deck of playing cards and allows the computer to randomly access any of the thousands of frames (individual "still" pictures) on the disc and present them on a single colour monitor used simultaneously by the videodisc player and the computer

Two programs, written by the makers of the Micro-Ed, are provided and have to do with understanding the globe of the world and maps At one point in the program, instead of having the computer churn out a computer designed picture of how earth looks from outer space, the program calls up the appropriate frame on the video disc which then shows an actual reproduction of a photograph of Earth as taken from the Moon by astronauts Besides these initial programming efforts, other applications are being developed to include a wide range of activities for families with children as well as adult interests You can write to Lasersoft in Eden Prairie, Minnesota

Out of room again See you next week

Bud Izen
Fairfield, California

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At last the long awaited sequel to Attack of the Mutant Camels is available. You are controlling a ninety foot high, neutronium shielded, laser spitting death camel, leading a rebellion against your evil Zzyaxian overlords. The game features beautiful smooth scrolling graphics and no less than 42 different attack waves, more than any game in video history. The challenge of play will last for months as you battle to see what's on the next wave.

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You can run your own business or play golf or pool or try golf in these simulation games. How well do they perform?

Dodgy Dealer
32K BBC £6.50

OIC, 15, Burghead Cl, College Town, Camberley GU15 4XL

Ever fancied running your own business? You know the sort of thing armed only with your £5,000 bank loan, and a number of advisors, you set out to make your mark on industrial Britain. Too risky? Fortunately this text-based simulation lets you play out exactly this business scenario without having to suffer any real sleepless nights.

Your goal is simply to try and make a profit, or avoid bankrupcy, in a set time. You are offered helpful advice by your managers, covering all aspects of your business, including production, marketing, transport and accounts. You must then decide how much money and resources to allocate in the different areas of the business. Oh, of course, the advice doesn't come free!

If you enjoyed ruling your country in King (one of the programs supplied with your BBC) or Hmrabi, then you will find this quite gripping. Obviously the business simulation is not quite up to the level of Executive Suite on an IBM-PC but I am sure any marketing man will have a challenge sorting out his market strategy on level nine! Rank novices should start on level zero. Needs O S 1 2 **P D**

instructions	90%
playability	80%
graphics	80%
value for money	85%

★ ★ ★ ★

City
48K Spectrum
£6.95

Terminal, 28 Church Lane, Prestwich, Manchester M25 5AJ

Anyone who has nurtured ambitions to be a bloated capitalist can now act out the role with this game of property development speculation. It's for one to four players with the Spectrum playing vacant places. Each starts with £200,000 with the aim of making £1 million. You take turns — quickly or, as in real life, the chance may disappear — at moving round an on-screen map building, demolishing or purchasing pubs, houses, apartments, shops, factories and banks. All the rent collecting, tax paying and other book keeping is done for you. As the city is developed the map shows each players' property holding in a distinctive colour. Realistic features include varying property values to reflect, for example with a pub, the building nearby of houses for customers.

City has four game lengths, each with slightly different characteristics, along with a "save game" facility, necessary because of the time taken to complete a game. There are even two colour schemes in case one does not suit your TV!

A very well thought out, well presented package and very enjoyable to play. I would suggest, though, printed detailed instructions as well as those on screen. **D J**

instructions	60%
playability	85%
graphics	80%
value for money	90%

★ ★ ★ ★

Eight Ball
Dragon 32 £8

Microdeal, 41 Truro Rd, St Austell, Cornwall PL25 5JE

Dragon graphics aren't up to producing a playable game of snooker — not enough colours — so Microdeal has come up with this version of pool instead. It's a simplified game with no scoring. The first to pot all their own balls and the eight ball wins.

It's a two-player game, though you can play yourself if you can't talk anyone else into it. Play is controlled by joysticks. You position the cue ball (if necessary), press the fire button, position the cue, press the button again, select spin by positioning a small dot on a ball at the top, then hold the fire button down while a 'power bar' grows to the appropriate length for the force you want. The balls move smoothly around, making a fairly authentic click when they collide and disappearing if they reach a pocket.

Sound effects are good, though limited, and graphics adequate. There is a choice of three screen colours, but with the traditional green table the balls are none too easy to distinguish. It's clearer in black-and-white. It's not much like the real thing, but fun to play all the same.

M.N.

instructions	75%
playability	80%
graphics	70%
value for money	85%

★ ★ ★ ★

Bandit
32K BBC £2.99

CompuSoft, 32 Watchyard La, Formby, Liverpool L37 3JU

I still cannot see the fascination in playing a game which normally has money pouring out of a machine's mouth on a machine which has no mouth at all! Don't get me wrong, I like feeding the unidextrous thieves, but only if there is that chance of the big win. I really can't see any pleasure otherwise.

As you may have guessed, this is a fruit machine program and a very good one, with random holds, nudges, collect or gamble winnings and even a special Bandit feature offering even more mythical money to win. You start with 50p and it "costs" 10p a go. There is nothing to criticise — plenty of colour, good graphics and sound. But you don't actually win or lose money and, in keeping with this, you can get another 50p any time! The best feature is undoubtedly price and if you want this kind of program you won't beat this value. It really is as good as others I have reviewed at twice the price.

Wait a moment. I've thought of a use at last! It's for gamblers who want to stop losing money but keep the habit. Eureka! **D C**

instructions	70%
playability	80%
graphics	80%
value for money	90%

★ ★ ★ ★ ★

Royal Birkdale
48K Spectrum
£6.90

Ocean, Ralli Bdg, Stanley St, Manchester M3 5FD

This golf simulation takes its name from the well known golf course and promises a faithful reproduction of the 18 holes. The title page is spectacular in colour and definition, with a picture of the club house. That high standard of graphics is maintained throughout.

As with most computer golf games, you select the direction, club and strength with which you wish to strike the ball. An added plus here is that you also have your reactions tested. The outcome decides whether the shot is true, or whether you hook, fade, or slice the ball.

Once the ball is on the green, the display moves to a close up. Even the slope is taken into account as you attempt to putt. Again, there is a reaction test. This I found the most frustrating part — the strength of the putt is too sensitive to the test, and success is extremely difficult.

Apart from poor error trapping of the INPUT responses, this is a well written BASIC program which could provide a lot of fun — once you've learned to putt! **D.N**

instructions	80%
playability	70%
graphics	90%
value for money	80%

★ ★ ★ ★

It's a one-way flight, unless your bomb aiming is on target

Add to your collection of arcade-style classics with 6809 Squadron, written for the dragon 32 by Clive Gifford (who intended the pun in the title...)

As your target approaches you feel surprisingly calm Your hand is lightly resting on the button ready to start bombing the centre of the enemy's industrial complex

Your mission is one of high risk To carry the maximum tonnage, you decided to limit your fuel

It means this is a one-way journey The only chance you have forsurvival is to clear the screen, enabling you to land safely, otherwise you will go down with guns blazing

The game is played in high resolution graphics and the instructions are in the program There is a choice of 10 skill levels relating to the height of the buildings

How it works

60-80 set up and display title page

190-310 request skill level and transfer this to the size of the buildings Graphics are drawn while the text screen is displayed, a useful trick which prevents people from having to watch the graphics display slowly evolve time and time again

470-500 are put into action is spacebar is pressed This is the bomb drop routine

510-520 are for when the aircraft crashes If it manages to land safely, then lines 530 590 activate win routine An interesting point of note is line 600 which produces the striped effect background for the win routine

600-690 score, high score, another game?, if so re start Note use of fast POKE in lines 640 and 250

```
10 REM**********************
20 REM*****6809 SQUADRON****
30 REM*****CLIVE GIFFORD****
40 REM**********************
50 CLEAR 1000
60 PMODE 3.1:PCLS:SCREEN 1,0
```

```
70 CIRCLE(128,130),60,3:PAINT(128,130),3
,3
80 CIRCLE(128,130),40,2:PAINT(128,130),2
,2
90 CIRCLE(128,130),15,4:PAINT(128,130),4
,4
100 DRAW"BM30,60;U50R30D10L20D10R20D30L3
0E10H10D10L10"
110 PAINT(35,55),4,4
120 DRAW"BM85,60;U50R30D50L30BE10U10R10D
10L10BU20U10R10D10L10"
130 PAINT(90,55),4,4
140 DRAW"BM140,60;U50R30D50L300E10U30R10
D30L10"
150 PAINT(145,55),4,4
160 DRAW"BM190,60;BU24U26R30D50L10U24L20
BE10U6R10D6L10"
170 PAINT(215,55),4,4
180 PLAY"T2O3L4GL2EP10L6CDEFAL12O04CO3BO
4CO3L2BP10L6GABO4CEL12FGFGL2FP8L4O3FEOL1
CP2"
190 CLS:PRINT @ 66,"SKILL LEVEL (1-10) 1
0=SIMPLE":INPUT L
200 IF L>10 OR L<1 THEN 190
210 SC=0:A=10
220 PMODE 3,1:COLOR 2,3:PCLS:SCREEN 1,0
230 CLS:PRINT @ 199,"g o o d   l u c k"
240 PRINT:PRINT"  REMEMBER: SPACE BAR TO
BOMB"
250 POKE 65495,0
260 FOR I=1 TO 22
270 H=((INT(RND(70)+L*8)+20))
280 A=A+10
290 LINE(A,H)-(A+9,187),PSET,BF
300 FOR T=10 TO 230 STEP 10:LINE(T,187)-
(T,0),PRESET:NEXT
310 NEXT I
320 PMODE 3,1:COLOR 2,3:SCREEN 1.0
330 PLAY"L4O3CED"
340 X=20:Y=9
350 A=X-6:B=Y+6
360 IF PEEK(135)=32 THEN POKE 135.0:GOSU
B 470
370 GOSUB 400
380 GOTO 350
390 S$=""
400 S$="BM"+STR$(X)+"."+STR$(Y)+"U7R3D3R
7D4L10BU2BR4R4":DRAW S$
410 LINE(X-15,Y-9)-(X-1.Y+1),PRESET,BF
420 IF X=240 AND Y>=180 THEN FOR T=1 TO
8:PLAY"O3L12FACE":NEXT:GOTO 540
430 IF X>=250 AND Y<190 THEN Y=Y+10:X=10
:LINE(248,0)-(255,190),PRESET,BF
440 X=X+10
450 IF PPOINT(X+9.Y+3)<>3 OR PPOINT(X+7,
Y+3)<>3 OR PPOINT(X+9,Y)<>3 OR PPOINT(X+
6,Y+6)<>3 OR PPOINT(X+7,Y+6)<>3 OR PPOIN
T(X+9,Y+6)<>3 THEN 510
```

```
460 RETURN
470 B=B+15
480 LINE(A-2,B-15)-(A+4,B),PRESET,BF
490 B$="BM"+STR$(A)+","+STR$(B)+"R4D3G2H
2U3":DRAW B$
500 IF PPOINT(A,B+6)=3 OR PPOINT(A,B+7)=
3 THEN GOSUB 400:GOTO 470 ELSE LINE(A-2,
B-15)-(A+7,B+30),PRESET,BF:PLAY"O1L20C":
SC=SC+10:RETURN
510 FOR T=1 TO 15 STEP 2:CIRCLE(X,Y),T,2
:NEXT
520 FOR T=1 TO 8:SCREEN 1,1:PLAY"O1V30L9
C":SCREEN 1,0:PLAY"O2V18C":NEXT:GOTO 640
530 PMODE 3,1:COLOR 2,3:SCREEN 1,0
540 X$="BM40,40:S2D60E30F30U60BR30R60L60
D30R50L50D30R60BR30R60L60U60BR90D60R60"
550 X$=X$+"BM40,120:S2R60D60L60R10U60BR8
0R60D60L60U60BR90D60U60F60U60BR30R60L60D
30R50L50D30R60"
560 Y$="C3"+X$
570 X$="C2"+X$
580 FOR T=1 TO 8:DRAW X$:PLAY"O1L250CDEF
GBDCDA"
590 DRAW Y$:PLAY"O3OFEGCABBCD":NEXT T
```

```
600 POKE &HB2,109:POKE &HB2,108
610 FOR T=1 TO 255:LINE(T,0)-(T,190),PSE
T:NEXT
620 FOR X=1 TO 15:DRAW X$:DRAW Y$:NEXT
630 FOR T=1 TO 1000:NEXT T
640 POKE 65494,0:CLS:IF SC*10>HS THEN HS
=SC*10 ELSE GOTO 670
650 PRINT @ 200,"SCORE:";SC*10:PRINT"YOU
 HAVE BEATEN THE HIGH SCORE  PLEASE ENTE
R NAME (LESS THAN 9  CHARACTERS)"
660 INPUT N$:IF LEN(N$)>9 THEN 660
670 CLS 3:PRINT @ 297,"SCORE:";SC*10;
680 PRINT @ 71,"HIGH SCORE:";HS;:PRINT @
 139,"BY ";N$;
690 PRINT @ 392,"ANOTHER GAME?";:INPUT G
$:IF G$="Y" THEN 190 ELSE END
```

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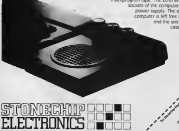

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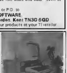

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